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Notes on Some Cases Met With in Cattle Practice.*

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I think it would have been better had I called this paper "bucolic" browsings, and I must ask you to forgive its glaring faults, but when our worthy Secretary wrote asking me to initiate a discussion I had not fully digested our President's very true remarks at our last meeting, and realised how far I had been left behind.

I propose to introduce a few notes on cattle practice which I hope will evoke plenty of criticism and promote a good discussion.

I had the pleasure of presenting a short paper to this Society in 1921 and on looking back find I had the temerity to open on mastitis: a very difficult subject and one which is still taxing the best brains in the profession.

Bacteriologically, our knowledge has undoubtedly greatly advanced but, so far as treatment is concerned, we seem to have advanced very little. Excluding cases due to specific organisms, such as those of tuberculosis and actinomycosis, which are comparatively rare, everyone will recognise clinically at least three types, "acute," "subacute" and what is known as "summer"; all, in my opinion, more or less infectious.

The acute type is now, I think, proved usually to be due to a staphylococcal infection and is characterised by a very hard discoloured udder from which it is only possible to draw with difficulty a little thin, dark and evil smelling fluid; this type is quite incurable and the few cases which survive take months to recover, with usually considerable sloughing of the udder if this is not removed surgically. Amputation of the teat to provide drainage may do some good, but toxic absorption is usually so rapid that all treatment is useless and I always recommend early slaughter.

The subacute type is characterised by alterations in the milk, varying from a slightly flocculent appearance to thick pus; it is accompanied by high temperature and usually constipation and loss of appetite. To treat successfully these cases it is essential that one should be called in within the first few hours and in these circumstances I have been fairly successful with the administration of a preliminary purge consisting of sod. sulph., aloin and fluid ext. nux vom., following this up with frequently repeated and massive doses of liq. ammon. acet. conc., and nux. vom.; many practitioners I know use ammon. carb. as a stimulant, but I have had more success with the acetate and it is certainly more easily dispensed. This treatment should be coupled with frequent vigorous massage of the udder with some external stimulant; personally, I use camphorated oil, 1-6; one excellent person I know uses plain oil of peppermint with very good results. If one is sure of a careful attendant, hot fomentations are also undoubtedly a great help, but in careless hands are likely to cause harm instead of good as the udder simply gets dabbed with warm water and then left in a moist condition to get chilled, instead of being well rubbed dry and then massaged with some oily preparation. My opinion of vaccines in these cases is, I am afraid, very poor; perhaps I have been unlucky, but I have tried many brands both autogenous and stock with little apparent result.

Summer mastitis is characterised by a thick pus-like accumulation in the affected quarter; now proved to be usually due to a pyogenic infection, it occurs in dry cows and systemic disturbance is usually small. The only treatment of any apparent use is continual thorough stripping of the affected quarter as many times daily as possible, and this should be carried through till after calving, but whatever treatment is adopted there is usually more or less atrophy of the affected quarter. Sometimes in these cases, and indeed in all cases not accompanied by high fever, I have used formalin in ʒ ii—ʒ iv doses twice daily, well diluted with water, with good results. Here, in passing, may I remark that I much prefer all drugs for cattle administered in plenty of water and not gruel; gruel, in my opinion, tends to retard absorption and there is usually plenty of material in a cow's stomach without adding to the mess; if on occasion any demulcent is necessary I think milk is better than gruel.

There is one method of preventive treatment for mastitis which has been highly spoken of, but unfortunately I have no experience; that is sealing the teats with collodion or some similar substance; if any member present has any knowledge of this, perhaps he would be good enough to give results. May I say here that I think mastitis is less common that it was, and this I think is largely due to what one might call indirect prevention in the way of better housing and better hygienic conditions generally for cows; there is still plenty of scope for further improvement, but great credit is undoubtedly due to the profession, and especially the country practitioner, for a vast amount of unrecognised mission work in this field.

While on the subject of udder troubles, may I mention a very simple and effective treatment for split teats; I mean those cases where the duct is penetrated and milk is leaking more or less plentifully. At one time I always carefully cleaned the wound with iodine and closely sutured, but results were not good. My treatment now is to leave antiseptics alone; simply get the teat and wound as clean as possible with the cow's own milk, then insert a fairly stiff wax bougie and bandage not too tightly over this with several turns of electrical insulating tape, enclosing the whole teat; leave instructions to remove the bougie at next milking and milk carefully with finger and thumb

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as much as necessary, but do not strip right out. The results are good. I always put a strict ban on the use of teat tubes and I think their use should be banned by law except in expert hands in exceptional cases; their use has ruined many valuable cows.

For dressing sore teats or small surface wounds on the udder or elsewhere I have for many years used an ointment of zinc oxide and petroleum jelly 1-6 with tinct. benzoin co. In making this up put the zinc oxide through a very fine sieve, then add sufficient tinct. benzoin co. to make the consistency of paint and mix this with the petroleum jelly cold on a slab. You will also find this an excellent dressing for sore mouths in sheep if you care to try it.

Turning now to the other end of the cow, I should like to draw attention to the treatment of choking by the hypodermic injection of arecoline; one sees very little mention of this in the various journals and I should like to emphasise the point that it is very easy and very effective; most members will, I think, agree that passing a probang is not always a "joy-ride," though bovine saliva may possibly be good for the complexion. It is some years since I started using arecoline (one grain only is quite sufficient) and my first case was a great success; this was a strong old cow of very uncertain temper; the owner, thank goodness, a very good friend of mine. However, two hefty men and myself spent the best part of an hour trying to dislodge a flat slab of turnip which could be distinctly felt about half-way down the neck; having pretty well exhausted ourselves and the patient, I told the owner that it looked like cutting down on the thing as the only way of removal, but thought we might experiment with the injection first. I may say that I had spent some time trying to shift the obstruction by manipulating the œsophagus externally, but it was too firmly fixed to move either way. The arecoline injection was given and the obstruction was gone and the patient feeding normally two hours after! "Thinks I to myself," "this is another first time miracle that won't work next time"; however, it did and now I look on this treatment as practically specific and the old probang is discarded except for tympany. Arecoline also works equally well for choke in horses though the sweating and salivation are rather painful to watch for a while.

Talking of tympany reminds me that I seldom use a trochar and canula these days, preferring to pass the probang and get relief that way if possible and if necessary. But any instrumental aid is, in my experience, usually unnecessary; a good dose of oil of cajuput in linseed oil, coupled with strenuous massage of the rumen, will generally do the trick, and when relief is obtained follow up with a few doses of formalin and water to allay further excessive fermentation. We certainly seem to get fewer cases of acute tympany these days; possibly due to more enlightened methods of feeding and watering.

Cases of recurring tympany are usually not due to excessive fermentation at all but simply to mechanical obstruction preventing the regurgitation of the natural gases formed in the stomach. I refer to cases which blow up more or less after every feed and at fairly frequent intervals get badly distended. The obstruction in 99 of these cases out of 100 is an enlarged tuberculous gland pressing on the œsophagus and so preventing natural regurgitation. The presence of a foreign body in the rumen is usually stated to be a cause of tympany also, but personally I think this is unusual. One usually sees in these cases a condition of semi-impaction accompanied by grunting and loss of appetite; also a certain stiffness of movement and occasionally, if free, the animal will continue walking in circles; in one or two cases I have noted frequent licking of the ribs over the offending body. All this prior to penetration, when diagnosis, apart from simple indigestion, is often very difficult; after penetration, when the pericardial sac is reached, there is, of course, little difficulty.

Impaction of the rumen unassociated with tympany is about the commonest and sometimes most obstinate complaint cattle practitioners meet. Everyone will recognise these cases—off their feed, dull and mopy; a dry nose; usually very little temperature, and dribbling or, as they say in some parts, druelling, and on palpation of the rumen a feel like plum pudding in the making. Of course a red drench, or an electric mystery, or Mickey Mouse's latest has been given already with no effect. My treatment, as a general rule, is a preliminary drench of sod. sulph. lbss., aloin ʒi; fluid ext. nux vom ʒi, followed by powders sod. chlorid. ʒiii-ʒiv, pulv. gent. ʒi, pulv. nux vom. ʒss to be given twice daily in a full quart of warm water. If after three or four of these powders the case is not progressing, I prescribe the same, coupled with barium chloride ʒss, which is quite safe and very effective, but as a rule unnecessary. Here may I remark that large single doses of bar. chlor. in cattle seem to have very little effect, but repeated small doses are excellent; also I have found sod. sulph. (glauber salts) much more effective than mag. sulph. (Epsom salts) but to get the maximum result from either they must be given in plenty of water, not less than a quart, at any rate; also, the patient must be induced to drink as much as possible, therefore give plenty of salt and make her thirsty; adding tonics like gentian and nux vomica to tone up the bowel at the same time.

Text book doses for cattle are, on the whole, far too small and can usually be doubled with safety and benefit. Here I must make at any rate one very important exception and that is strychnine hypodermically; I see Banham gives the dose for a horse as up to grs. ii, which, according to the instructions of up to ½ as much again for cattle, would make the major dose grs. iii; now I have frequently seen quite unmistakeable symptoms of strychnine poisoning in cattle from grs. i and this is quite the biggest dose I think safe. The heavier breeds of horses and even quite light hunter types I have given larger doses with impunity. This statement is not made without experience; possibly you may think I am a strychnine "fan," but all my cases of milk fever and nearly all colic cases get gr. i *plus*, of course, other treatment, with I think good results.

While talking of drugs, there is one of fairly recent introduction I should like to mention; this is Istizin, or should I say Dioxyanthraquinone! I have been using this now for some while and for the treatment of intestinal impaction, especially in the horse, have found it far more effective than aloes; also the action is more prolonged and apparently less griping and I have never yet had a case of superpurgation such as one gets occasionally with aloes even in comparatively mild doses. I

usually give ʒss. doses to an average sized animal, but if this is not effective or the case appears to be unusually severe this dose may be quite safely doubled. This drug also appears to be less nauseating than most and even if the fæces continue quite soft for some time the patient will usually commence feeding and not show the usual aloes depression. For some unknown reason it appears to have a far more drastic action on cattle than horses and although the purging produced is not difficult to stop, I have on occasion had to adopt corrective treatment.

I will not detain you much longer, but should like to make one note on tuberculosis eradication, and that is; if we are ever to stamp out tuberculosis under the crowded conditions which exist in this country, we must have better hygiene; test by all means and eradicate reactors as soon as possible, but it is the filthy, cramped conditions in which the majority of cattle are reared and kept that must be altered before we can hope for success in any reasonable period of time. Calves, especially, should be reared in well-lit, airy pens away from the cowshed. The filthy conditions to which young stock are frequently subjected have more to do with keeping tuberculosis flourishing than any other cause. Anyone with much experience of testing must realise how clean the cattle reared on poor hill farms with often very short commons are, compared with those reared in the crowded dairying districts.

I trust you will not spare your criticisms; a good discussion will cover a multitude of sins.

Discussion.

The President (Major A. C. Duncan), in inviting discussion of the paper, observed that it was one after their own heart: a practical paper written by a really practical man, as was perfectly obvious to all who had heard it. (Applause.)

Mr. J. R. Hewer supplemented the President's laudatory reference to the practical nature of the paper by saying that contributions of that type could always be relied upon to lead to a good discussion.

In a paper full of valuable suggestions, however, he noticed that the essayist had given them no cure for acute mastitis except in advanced cases, in which he advocated the use of the knife, and he (Mr. Hewer) agreed with him. As regarded the summer form, Mr. Baxter had advised the use of 2-4ʒ formalin, which he also used, and thought too, a little gentle massage with anything one liked had a good effect in helping to break up the discharges and bring them away.

Summer mastitis was certainly a bugbear. It occurred suddenly, when the cows were at grass and was often overlooked until too late. He thought that stockowners should have it impressed upon them how important it was to examine the cows when they were turned out and any cow showing swelling of one or more quarters should be milked, and, if bad milk were present, be treated as an ordinary mastitis case.

As regarded the choking case, he was interested to hear of Mr. Baxter's success with arecoline. He also had used it, especially in the horse, but there was one drawback to the essayist's method: did he wait at the case for two hours to see the drug act? If he did not, the owner might not be satisfied to be left with a choked animal and the mere assurance that all would be well in two hours' time.

He thought that in impaction one very important thing was starvation: if they took the food away for 24 hours they would get a more complete recovery.

He quite agreed as regarded the serious rôle in the perpetuation of tuberculosis infection amongst young stock played by the filthy conditions in which frequently they were kept. In testing a bunch of young cattle one frequently got a large percentage of animals passing and on enquiry one would frequently find they came from a hill farm.

Lieut.-Colonel G. Rees-Mogg said that he kept a herd of Friesian cattle, and must admit that they were very delicate as regarded their udders, though that was not a matter for surprise inasmuch as the breed were in some cases used as milking machines, pure and simple, and were consequently very prone to udder troubles.

There were some very clever bacteriologists who did not accept the view that infection was through the teat canal. He was talking the other day to one who was working at the question, and his opinion was that infection entered the udder through the skin by massage at milking, and that none gained entrance through the teat canal; whether he was right or wrong remained to be seen.

There were these two types of mastitis: the ordinary form, caused by the streptococcus, and the summer form, caused by the diplococcus. Two years ago they had a terrible time with mastitis. It was very hot and the flies were very bad, and they had ten cases of mastitis in the herd, two of which proved fatal, while many other veterinary surgeons told him that they were bothered to death with the disease at that time. That year he had sealed the teats of some of the cows and, he must say, with disastrous results. He did it himself, and took the utmost care, putting iodine on the teats first of all. But, with all those precautions, he lost a very valuable cow.

This last summer he took the advice of Colonel Brittlebank; he was determined to do everything possible to try and stop the losses from summer mastitis, and with all the dry cows and in-calf heifers he put very weak creosoted vaseline on the udders, inside the thighs and on the ends of the teats. He also treated the milking cows in the same way when they went out. It cost a lot, but he had no case of mastitis last year, though it had to be remembered that last summer was not nearly such a hot one as the summer previous, and the flies were not nearly as bad.

Last August he attended the N.V.M.A. Congress at Ayr and saw Mr. John Brown demonstrate the injection of his solution of bismuth, iodoform and liquid paraffin—ordinary Bipp—which, of course, had to be used hot. One injected six ounces into each teat. He (Major Rees-Mogg) did that with all his in-calf heifers and dry cows and he must say that it was most satisfactory; at least, they did not get mastitis. It was rather a task, and an expensive one, but one gave one injection only and when the cows calved one just milked out the stuff, which was still in the teat—though it was said that if the calves sucked it out it would do them no harm.

When all was said and done, however, mastitis remained a great bugbear; he had lost hundreds of pounds over it in his own single herd.

Major F. J. Taylor said that he got quite a large number of cases of septic mammitis in his practice, and he generally attributed them to some septic infection of the blood. One met with them in dry cows very frequently and he recalled one or two very big herds which were infected at the same time. He distinctly traced one outbreak of that contagious mammitis to the cows drinking and using a dirty pool in the field, which was drained from a smallholder's place adjoining, where pigs and other animals were kept. Samples of water from this pool were sent for analysis and they found that septic organisms abounded in it, and he put that outbreak down to the drinking of septic water. He would like to have Mr. Baxter's views on the correctness of that theory.

In regard to the treatment of mammitis, he generally advised very frequent stripping of the udder: if time could be found, let them strip it six times a day. He had discontinued fomentations for a long time and in their place he generally used an iodine ointment, rubbed well into the udder twice a day.

He was rather surprised to hear Mr. Baxter's opinion being adversely expressed in regard to vaccination, for he himself had had, from the use of a certain vaccine (named), some very good results.

Concerning the use of the probang in choking, he had three probangs hanging on his walls but they had not been used for years. That reminded him of a humorous letter he saw in the *Veterinary Record* some years ago from a gentleman in the North of England, who said that the

only use he found for his probang was to give an old hunter, which would not otherwise move out of the stable yard, three across the ribs before starting for a day's hunting. (Laughter.)

He (Major Taylor) once made a facetious remark, many years ago, in regard to the stomachs of the cow, that "the Almighty never intended the veterinary surgeon, or anyone else, thoroughly to understand them, or their true functions" and, with regret, he still held that opinion.

He agreed with Mr. Baxter that the administration of Epsom salts produced very uncertain results and he much preferred, as did the essayist, to use sodium sulphate and aloes with nux vomica, and ammon. carb. when indicated, as a standard purgative drench for the cow.

Mr. C. E. Perry first, as a visitor, returned thanks for the welcome accorded him, adding that he could not refuse the invitation extended to him by the President to take part in that discussion. Having expressed his appreciation of the paper, Mr. Perry proceeded to say that he was very interested in Mr. Baxter's use of arecoline. As the latter had observed, by its use as an injection one could dispense with passing the probang in the average case of obstruction of the œsophagus in the cow. It was, indeed, a great improvement on the old method.

Concerning mastitis, he agreed that in septic mastitis the only thing to do was to remove the teat, for it was the best means of securing drainage. It was of no use to leave it to the owner or attendant to strip the udder four or five times a day. He knew that usually the owner objected to removal of the teat, but when one commenced to practise that procedure in a district the owners soon got used to it. Only the other day a cow was sold in the local market, and for a good price, from which he had removed three teats.

As regarded Major Taylor's case of infection from a dirty pond, he did think that, in fact, that case was due to infection through the blood; in his opinion the teats were infected through the cows getting into the dirty pond. In his view, summer mastitis was due to fly infection from the teat and not to blood infection; that was the reason why one met with it in certain seasons, when the flies were very plentiful.

The Hon. Secretary (Mr. H. Bell) observed that he did not know as much about general practice as did Mr. Baxter, but he must thank him very much for his paper, and he hoped that a number of the other members would be spurred on thereby to read similar papers. (Hear, hear.)

There was one thing that always occurred to him in looking at a case of mastitis. Many people seemed to recommend massage, but it did not seem to him to be quite consistent with the use of massage as applied to other complaints. For example, they often recommended hard-rubbing of a horse's tendons, when there was a certain amount of exudate about them, in order to promote the absorption of that exudate, and he thought that if they had an udder full of septic material the less massage they practised the better, if it was going to promote absorption.

The speaker did not deny that he frequently advocated massage in the treatment of mastitis. He believed that the best treatment in such a case was to remove the teat at once, if they could persuade the owner to allow it.

Mr. Baxter had talked about the treatment of split teat, when the duct was penetrated and the milk leaking, but he (Mr. Bell) did not quite follow the procedure. The essayist put a stiff bougie up and bound it round with insulating tape, leaving instructions for the removal of the bougie at the next milking. Did Mr. Baxter leave the tape in position?

The recently-introduced drug, Istizin, mentioned in the paper, was well worth a trial in intestinal infection, but while he had had good results with it in the dog and cat, he had not met with much success with its use in the larger animals. However, the people who prepared it recommended its use in larger doses than he had been giving and he was hoping for better results.

Mr. Bell concluded by saying that, in his opinion, summer mastitis occurred by infection through the teat duct, while he also drew attention to what he described as a very useful instrument for removing pea in the teat, which he had used with great success.

Mr. J. C. Coleman expressed his indebtedness to Mr. Baxter for what he termed his "very popular paper." He noticed that the essayist divided mastitis into acute and sub-acute forms, and that for the latter he advised fomentations and massage. His (Mr. Coleman's) experience was that both those forms of mastitis were undoubtedly of bacterial origin. Heat and massage tended to the rapid propagation of organisms; therefore, in his opinion, neither the application of warm fomentations nor of massage was denoted.

Some of the speakers had expressed themselves against vaccine treatment. Within the last three or four years they had had four or five hundred cases of mastitis and in many instances it had gone right through the herd. If it broke out on a second occasion they had had an autogenous vaccine made, which had acted as a curative in those animals upon which it had been used in good time, and as a preventative in about 75 per cent. of the previously unaffected animals. When a case was very far advanced he sometimes took the whole of the udder away.

Mr. Coleman corroborated Mr. Baxter's statement that recurrent tympany was often caused by enlarged tuberculous glands pressing on the œsophagus and so preventing natural regurgitation. But how did Mr. Baxter diagnose their presence? He always passed the probang and by so doing he could often find an obstruction about midway through the thorax, when he invariably suspected a tuberculous mediastinal gland, for he had verified that diagnosis over and over again on *post-mortem* examination.

Mr. F. Willett remarked, amid applause, that Mr. Baxter's paper was well worth the effort many of them had made in journeying many miles to hear it. He was struck by what one of the previous speakers had said about the injection of arecoline—that some owners would object if the veterinary surgeon left a choked cow after administering the injection. He would try the probang first, for that reason. He, too, was of the opinion that in mastitis the infection entered *via* the teat, which might be infected from the bites of flies.

Mr. W. L. Little said that he must thank Mr. Baxter for his paper, but he found some difficulty in discussing it owing to the great range of material introduced. One of the most important things the essayist had brought forward was the question of mastitis. There was no doubt in his (the speaker's) mind that the most common type of mastitis with which they had to deal was that due to the streptococcus, and that might take an acute, sub-acute, or chronic form, and was the type of mastitis which was most troublesome to them at the present time. They might get one case of mastitis in a herd now; later on they would get more, and they would find that they kept on getting more, until eventually every cow in the herd was affected. When once a cow had that streptococcic form of mastitis, she never recovered, in his experience, and she was always liable to a recurrence of the disease, and every act of calving would bring on another attack.

He had tried vaccines, but they had not been successful. You thought you had cured your animal, but you got a recurrence, and his experience—and he thought that of others, too—was that, taking them as a whole, vaccines had not proved successful. With regard to the mode of infection in streptococcic mastitis, he thought it was spread by the milkers; not only by the act of milking but by the milkers' practice of washing the teats. What was more natural? A man had a pail of water and a cloth. He went around washing every cow's teats. He rubbed the teats vigorously and the cloth gradually became sodden with the milk from many teats. If that milk had streptococci in it, here was obviously a ready means of the spread of infection. The men should use a fresh pail of water and if possible a fresh cloth for each cow, especially if mastitis were present in the herd. Every cow that had had mastitis, or of course that had mastitis at the time, should be milked after the unaffected cows. If possible, such affected animals should be put into a shed

by themselves. There was evidence to show that before mastitis was set up there must be some injury to the udder tissue as well as the presence of the streptococcus.

He could not imagine how an infection could get through a cow's skin without there being some lesion on the skin. If there were a wound at the base of the cow's teat they might get infection rubbed in there, but if the skin were sound he did not see how mastitis infection could gain entrance by simple friction.

Summer mastitis was a terrible scourge, and he thought that the chief trouble was, as Mr. Hewer had said, that they were asked to see those cases too late. Farmers had a bad habit of turning a dry cow out and not looking at her until she came up to calve. Something of the nature of Bipp was required to seal the teat, because infection was by the teat canal, and he thought there was no doubt at all that the flies were responsible for most of it. He remembered an instance where he was called in to attend some cows which were said to be dying from pneumonia. Mastitis was the cause, and he asked to be shown the dry cows in the field. They were in rough pasture and he observed to the owner "This is a good meadow for flies." The udders of the affected cows were black with flies; no further cases of mastitis occurred after the cattle had been moved to a meadow which the farmer thought had no flies.

He had been rather interested in the discussion that had been going on in regard to choking. Only the other day he saw a horse that was choked. It had been choked before, and he expected that it had got constriction and dilatation of the œsophagus. The horse choked himself, when he was brought in from grass, with raw oats. The night before last he rang up Mr. Coleman's son at Reading and told him about this, and asked "Do you think it is any use trying the stomach tube and lavage? He (Mr. Little) agreed with the reply he received, that nothing of that sort with a choked horse was likely to do any good. He also asked "What about arecoline?" and the reply was "I do not recommend it." He could quite imagine that if a choked horse was given arecoline it might lead to a rupture. He had not tried arecoline in cattle, but should do so in cases where it was difficult to remove a piece of turnip. As a matter of fact, however, he thought the profession did not pay sufficient attention to the fact that 75 per cent. of choked cows would recover if one did nothing to them at all; it was simply a matter of the turnip getting soft, and that soon occurred.

He desired very heartily to support what Mr. Baxter had said about the matter of rearing calves. He did not wish to embark the meeting on a prolonged discussion of a big subject, but to his mind there was no doubt that the time was not ripe for any drastic attempt to eradicate tuberculosis from our herds; but if the farmers only chose to do the right thing by their young stock, looking after them as they should do, the local authorities also doing their bit, then he thought that before long the time would be ripe.

Before sitting down, he would like to say, in regard to the treatment of mastitis, that it was a common practice on the Continent to bathe the udder with icy-cold water, and as frequently as possible; in fact, the veterinary profession there complained that the difficulty was to get people to use the water cold enough. That treatment, of course, was the very reverse of that practised in this country.

Mr. J. R. Hewer said that it was now his practice to pass the probang in all cases of hoven. If when one had got down about two-thirds of the length of the probang, one noticed an obstruction, one could be justified in assuming that that obstruction was due to an enlargement of the mediastinal glands.

In regard to mastitis, he thought that in many cases enquiry of the cowman would elicit the information that at the previous milking the cow had had what the cowman described as "a chill of the udder."

The President (Major A. C. Duncan) now observed that he thought they had had quite an interesting discussion; they would have had more but for the extreme modesty of those who thought a great deal but did not talk. (Laughter.) Many important matters had been alluded to by the speakers, and naturally the subject which called forth the greatest amount of interest and discussion was mastitis. That, of course, was easily understood, because mastitis was a very important condition both from the point of view of the owner and of the practitioner. He was particularly interested when Major Rees-Mogg spoke to them from the point of view of the owner. It would ill become him (the President) to tell his fellow practitioners what to do or even what not to do, but he did think that the practitioner should keep the owner's point of view before him. The cow owner always cherished a certain amount of hope that the cow might get better; even if it should have a functionless quarter, at any rate it would not be obviously mutilated—and that was a great point with the owner, especially where pedigree cows were concerned. Therefore he thought they should look forward to a better line of treatment for septic mammitis than amputation of the teat or udder. The line he had in mind was based on recent research. As they knew, there had been a good deal of research work on mastitis in recent years—recent months, even—and he thought they were entitled to hope that recent bacteriological research into mastitis would, eventually at any rate, lead to the production of a vaccine which would be of some use, even though there seemed to be a concensus of opinion that at the present moment vaccination was not fulfilling all that was expected of it. However, when they knew definitely what organisms affected the animal they could look to the production of a valuable vaccine. Sometimes some of them had found that, whereas vaccination had been disappointing time and again, suddenly a case occurred in which they got an extraordinary recovery with vaccination. He did not think that was mere chance; he thought it showed that in those successful cases they had hit upon some strain of organism that produced the desired result, or something of that sort. For that reason, he believed that they were justified in looking forward to the advent of a better time in the treatment of mastitis.

He would like to hear more about sealing the teats. A very large dairy farmer told him some time ago that he had had extraordinarily good results from having his cows' teats sealed, but that the labour of doing it was enormous. Referring to the method of injecting the teat mentioned by Major Rees-Mogg, he (the President) did not see what else it could do except seal the teat from inside. It was just possible in some of the cases in cows sealed with collodion, that they had been infected before they were sealed. If you shut in the organism you would not get the good results hoped for, but if you sealed the teat before the injection occurred it seemed to him that it should prevent the infection.

The Reply.

Mr. J. R. Baxter, in reply, said that he must thank the members for their very good discussion of his paper and also for their very kind remarks.

He quite agreed with Mr. Hewer as to flies being the cause of summer mastitis; he thought they were, more often than not. He had tried injections of various sorts, but had not had many good results from them.

Concerning arecoline, he did not think that it was at all necessary to wait there for results; one could leave the case with entire confidence in the outcome. He did not agree that animals should be entirely starved in impaction, a little long hay should be given to stimulate the salivary and gastric glands.

Major Rees-Mogg had said that his Friesians appeared to be rather tender in their udders; it was certainly true that high-milking breeds were more tender in the udder than those of less milking capacity. The year before last he had a very bad outbreak of summer mastitis in a herd of Red Polls, and there was no doubt that it was due to the flies, for when they were taken from a fly-infested pasture there was very little trouble afterwards.

The results of the injection of a Bipp mixture into the udder, filling up the sinus and teat canal, and also of sealing the teats, were most interesting,

but he did not agree that its effects were confined to the teat; for example, the iodoform content of Bipp would inhibit the growth of bacteria in the udder itself.

In Major Taylor's case he thought that probably the organisms from the dirty water entered the teat, and not through the system at all.

As to vaccination, he used the vaccine mentioned very considerably, but with no good results. He had good results at one time, but since then it had been of little use.

He advised Mr. Perry to try arecoline: he would be surprised if that gentleman did not find it a successful method of dealing with choking.

Mr. Bell did not agree with massage. He (Mr. Baxter) did, for it broke down the congealed mass and liberated the discharges. They could not compare tendon hand-rubbing with teat or udder massage. He thought Mr. Bell should persevere with Istizin, for he would find it of service in large animals as well as in small. It was also good in cows, but it appeared to be more drastic for them than for the horse.

Mr. Coleman had said that all forms of mastitis were due to bacterial infection; there was no doubt about that. He (the essayist) had had no success with the use of autogenous vaccines and he must congratulate Mr. Coleman on his results. He did not definitely diagnose tuberculous glands in recurrent tympany; what he said was that 99 out of 100 cases were due to tuberculous glands. He quite agreed that there was often considerable difficulty in trying to pass the probang past such an enlarged gland.

Mr. Willett was one of several who had said that he would be afraid to leave a choked animal injected with arecoline because the owner would be apprehensive. His (the speaker's) clients had had thirty years' experience of him, and they seemed to be satisfied to leave such matters to his judgment. He did not think that Mr. Willett need have any fear as to the results.

Mr. Little had said that streptococcic mastitis was the most common form of the disease, and with that observation he agreed. He agreed, also, that mastitis was very contagious and affected cows should be milked in a separate shed, if possible. Certainly, too, methods of washing the udders left much to be desired.

Mr. Little had also mentioned the use of icy water, but he had not given any results. [Mr. Little: "They say it is good; that is all I can tell you."] He (Mr. Baxter) would be very dubious about using it.

He was in hearty agreement with the President's observation that their great hope in the cure of mastitis was the eventual evolution of the perfect vaccine, and the sooner it was produced the better. He sincerely hoped that the results from the present investigation of vaccine therapy in mastitis would be fruitful. (Applause.)

The Examination of Milk for Tubercle Bacilli.

In a paper on the above subject read before the Society of Public Analysts by Mr. D. R. Wood, F.I.C., a survey is given of the experience and results obtained in the examination of 1,000 herds in the County of Somerset during the last four years. The relative value of microscopical and biological tests is discussed, and experiments on the cytology of tuberculous milk are described. The limitations of veterinary inspection are pointed out, and the conclusion is drawn that the present methods are inadequate for the elimination of tuberculous milk.

Army Veterinary Service.

London Gazette—War Office—Territorial Army.

May 27th.—Maj. F. B. Gresham, M.C., T.D., having attained the age limit, retires and retains his rank, with permission to wear the prescribed uniform (May 28th).

Diseases of Animals Communicable to Man.*

By Tom Hare, M.D., B.V.Sc., M.R.C.V.S.

Animals and birds are the hosts of a large number of infective agents which are pathogenic for man, yet such infections apparently represent but a small proportion of human disease. Also these infections, in spite of their large number and variety, do not constitute a special problem possessing characters peculiar to itself. Discussion of the subject under review is apt to load the dice against the animal or bird host, probably because the habits of animals are more easily controlled than those of man. Experimentalists might be persuaded to find out if the bite of a rabid man will transmit hydrophobia to a cow, or if the phthisical sputum of the owner will produce natural tuberculosis in his pet dog. Closer study of the part played by man as the transmitter of disease to animals is needed for the more accurate understanding of the ecology of the infective agents. The following review briefly records the recognised modes of transmission of the causal agents among animals and between animals and man. No account has been taken of the diseases of primates communicable to man.

Diseases due to Bacteria.

Mycobacterium (bacillus) tuberculosis.—In Great Britain this bacillus infects cattle, dogs, cats, horses and birds commonly, swine frequently, goats occasionally and sheep, rabbits and guinea-pigs rarely. It does not appear to have been recorded in wild animals in their natural state, though N. S. Lucas[1] states that under confinement they are readily infected with both human and bovine types. E. Montgomery[2] says that in East Africa bovine tuberculosis is so rare as to be practically non-existent. In nature the bovine type infects cattle, dogs, cats, horses, swine and parrots; the human type infects dogs, swine and parrots; the avian type is found in birds, swine and horses, and in cattle it is a cause of metritis followed by abortion.

It is universally accepted that tuberculosis is most commonly conveyed from animals to man by the milk (or its products) of a tuberculous cow. Accidental wound inoculation of tuberculous carcasses and products is the cause of "tuberculosis verrucosa," "butcher's tubercle," or "*post-mortem wart*" in man. Recently E. Lowenstein[3] has emphasised the danger of avian tuberculosis to man, in whom the disease, conveyed by food contaminated with fowl fæces or by wound inoculation, clinically resembles paratyphoid fever.

The work in Great Britain of the Royal Commission on Tuberculosis of 1911 and of A.S. Griffith[4] has clarified our outlook on the incidence of human as compared with bovine type infection in man; but the fact—as Griffith previously rightly emphasised—that a considerable amount of tuberculosis of human beings, especially in childhood, is caused by the bovine type of bacillus does not limit tuberculosis of man to the product of the tuberculous cow. The assumption that a bovine type of bacillus isolated from cervical adenitis in a child is derived from tuberculous cow's

* (Reprinted from *The Medical Annual*, 1930.)

milk may be unwise if the investigation cannot trace both milk and cow, and ignores the excrement of the family's tuberculous dog. In the light of recent research the choice of names for the three types of tubercle bacillus as human, bovine, and avian is a misfortune; so frequently "type" is regarded as synonomous with "origin" that the renaming of the three types as A, B and C would cause less confusion. The recognition of the wide prevalence of tuberculosis, of all three types of organism, in man, animals and birds renders it highly improbable that the known methods of transmission and the measures taken for their control will exhaust the possibilities of the problem.

Bacillus anthracis.—This organism is the cause of sporadic outbreaks throughout Great Britain in the herbivora, particularly cattle, which are almost invariably infected by the ingestion of spore-contaminated food, for example, oil cake. Direct transmission is rare. The organism is usually transmitted to man by handling infected animals or their products, such as hides, wool and hair; by skin inoculation (malignant pustule); or by inhalation (wool-sorter's disease). Cow's milk has been found occasionally to contain *B. anthracis,* but milk from the deceased cow is a very uncommon source of human infection since its secretion usually ceases with the onset of fever. The danger is more likely to arise from contamination of the milk with the spore-containing dust of infected premises. African natives, who prefer raw or partly cooked meat, like the carnivora, are infected as the result of gorging on anthrax carcasses (E. Montgomery,[2] J. H. Sequeria[5]).

Salmonella Organisms.—These organisms, which produce the acute gastro-enteritis of "food-poisoning" or "salmonellosis" in man, are the causative agents of a variety of natural, acute, generalised diseases in animals and birds. *B. ærtrycke* infects the ruminants; *B. suipestifer* is the cause of swine paratyphoid and of secondary lesions in swine fever; *B. abortus equi* is the common cause of contagious abortion in mares; an unnamed variety has been described by T. J. Bosworth and R. E Glover[6] as the cause of contagious abortion in ewes in Great Britain; while *B. paratyphosis B* produces epizootics in herbivora as, for example, in the outbreak of human paratyphoid traced by Bruns, Hayo and Gasters to a flock of about 300 sheep of which 160 were diseased. The principal danger to man from these animal infections lies in the consumption of the diseased animal or of healthy meat contaminated during slaughter with the products of diseased animals. The practice of slaughtering infected animals for the food market, known as "emergency slaughter," can only be controlled efficiently by *ante-mortem* inspection of all food animals by veterinary officers. *B. paratyphosus A* has been isolated from a diseased pig by L. Broudin.[7]

Erysipelothrix rhusiopathiæ.—This organism—the *bacillus erysipelatis suis,* porcine strain—is the cause of swine erysipelas, which varies in its manifestations from an acute and usually fatal septicæmia, associated frequently with malignant endocarditis, to a mild erythema with recovery. The disease is wide-spread, assuming epizootic proportions in some parts of Great Britain, though there are no statistics of its incidence. Swine are infected under natural conditions most commonly through ingestion, rarely by wound contamination; other domesticated animals and poultry appear to be immune. Mice, rabbits and pigeons are very susceptible to artificial inoculation. The organism is closely related to, if not identical with, *Erysipelothrix muriseptícus,* the causative agent of mouse typhoid.

Since Casper, Hildebrand and Mayer[8] in 1899 reported a dermatitis affecting veterinary surgeons engaged in immunising swine, many authors, for example, L. Cotoni[9] (1919), C. Prausnitz[10] (1921), G. Duttmann[11] (1921), E. Parigi[12] (1922), R. Rupprecht[13] (1924), C. Postma[14] (1926), and C. Schaap[15] (1927), have recorded cases of human infection. The disease in man—usually in veterinary surgeons, butchers, farmers, or cooks—almost invariably follows inoculation of the fingers and is manifested by an erythema, and by lymphangitis of the arm, pyrexia, and constitutional upset. Suppuration is absent, the course is usually prolonged (three to six weeks) and occasionally ends fatally; the disease tends to recur locally. Some authors, for example, K. Edel[16] and E. von Redwitz,[17] regard the disease in man as identical with Rosenbach's erysipeloid.

J. Klauder, L. L. Righter, and M. J. Harkins[18] in 1926 made a detailed investigation of about 1,000 cases of a similar erysipeloid, known locally as "fish poisoning," among fishermen on the New Jersey coast. The disease follows the handling of fish and the organism, which is regarded as a fish strain of *E. rhusiopathiæ,* is thought to live in the slime associated with the industry.

The present evidence suggests an intimate relationship between the organisms of Rosenbach's erysipeloid, swine erysipelas, mouse typhoid and fish poisoning.

Brucella Group.—Both *Br. melitensis* and *Br. abortus,* differentiated from one another only by the agglutinin absorption test, are recognised as the cause of undulant fever (Malta or Mediterranean fever) in man. The abortus variety is the cause of the most widespread disease of cattle in Great Britain to-day, a generalised infection named contagious abortion from its common, though not invariable, sequel in pregnant cows. The Brucella group is also infective for goats (especially in the Mediterranean littoral), swine, equines, sheep, dogs and cats. Undulant fever is transmitted to man either through direct contact with infected animals or through consumption of their products, particularly raw milk. Thus, while pasteurisation "destroys the organism in milk it does not constitute a complete prophylactic measure." Though only 14 authentic cases originating in England have been recorded, yet, as emphasised by W. Dalrymple-Champneys,[19] who has published a comprehensive study of the present knowledge of the subject, the increasing recognition of *Br. abortus* as the causative agent in so many countries hitherto considered immune calls for the routine blood examination (agglutination test) of human pyrexias of unknown origin.

Diphtheroids.—Many strains of organisms morphologically and culturally almost, if not completely, identical with the *Corynebacterium* (*bacillus*) *diphtheriæ* of man, though differing in pathogenicity and serological tests, have for many years been recognised as the cause of various diseases in the domestic animals. For instance, the not infrequent type of acute mastitis of dairy cows leads to the presence of diphtheroid organisms, but not *C. diphtheriæ,* in the milk, the altered physical characters of which almost invariably result in its elimination from sale for human consumption. It is widely assumed that the origin of *C. diphtheriæ* in cow's milk is not bovine, but human, open or carrier cases. Cats frequently, and

dogs apparently rarely, die from a disease pathologically identical with human diphtheria, a bacillus-like *C. diphtheriæ* being readily isolated from the laryngeal or faucial lesions. Of our own cases the causative organisms have not been investigated in detail, but J S. Simmons[20] in 1920 isolated *C. diphtheriæ* (the serological and pathogenicity tests were performed) from an infected cat, and from a human diphtheria case and a second feline, both of which had been in close contact with the former. W. G. Savage,[21] who studied the available data in 1920, and examined bacteriologically a series of throat swabs from cats both associated and unassociated with cases of human diphtheria, concluded that human diphtheria was not related to cats. However, Savage made one omission, to which anyone unfamiliar with the pathology of cat diphtheria is liable; his report gives no evidence that he examined a case of cat diphtheria, and it is common knowledge that cats, apparently healthy or sickening from other diseases, frequently harbour nonpathogenic diphtheroids and *B. lactimorbi* (R. N. Perkins and D. S. Spreng[22]). Cat diphtheria, not "cats that are ill," should have been investigated.

L. Cobbett[23] isolated *C. diphtheriæ* from the nasal discharge of a deceased horse in 1900. The sick horse was examined after its owner's daughter had been diagnosed as suffering from diphtheria. F. C. Minett,[24] in 1920, isolated a similar organism from the suppurating superficial lesions of eleven horses and one mule at the Royal Army Veterinary Corps Hospital, Aldershot; H. J. Parish and C. C. Okell[25] isolated an organism, also identical with *C. diphtheriæ*, from three out of thirteen swabs taken from wounds of horses in a veterinary hosiptal in 1926. While a humaa source may be one explanation for all these cases in the horse, yet a paper by A. T. Glenny[26] draws attention to the more likely solution. He shows that horses possessing "natural" diphtheria anti-toxin in their blood are the most suitable for artificial immunisation, which fact, Parish and Okell[25] explain, "is due to the specific stimulus of infection by the toxigenic diphtheria bacillus."

There is sufficient evidence to warrant a co-ordinated investigation by the medical and veterinary professions of human diphtheria with special reference to animal sources of infection.

Bacterium tularense.—This has been identified as the cause of epizootics among wild rabbits, ground squirrels and other rodents in North America and Japan, transmitted from rodent to rodent by the louse (*Hemodipsus ventricosus*) and tick (*Dermacentor andersoni*), neither of which bites man. The disease in man, tularæmia, was recorded by W. Wherry and I. Lamb[27] in 1914 as a conjunctivitis and lymphadenitis associated with fever of two to four weeks' duration. It is transmitted from the diseased rodent to man by several blood-sucking flies (for example, *Chrysops discalis*), ticks, bugs and lice, or, as in the case recorded by T. S. Shelton,[28] by skin inoculation when handling infected rabbits. An allied species of organism, *Bacillus pestis*, also primarily affects rats and occasionally ground squirrels and prairie dogs, producing an acute fatal septicæmia. Rat to rat transmission occurs through blood-sucking rat fleas (*Pulex cheopis* in the tropics and *Ceratophyllus fasciatus* in temperate regions) or through cannibalism among the rodents. From infected rats the organism is conveyed to man by the rat flea, producing bubonic plague; man to man transmission is very rare.

Streptococci.—These are the responsible agents of many diseases in animals. It has not been established that the animal strains produce disease in man, even though human sore throat and gastro-intestinal disturbance following the consumption of cow's milk have been reported on numerous occasions. The incidence of such occurrences is relatively insignificant compared with the universal prevalence of mastitis in milch cows, and the milk from the inflamed mammary gland frequently undergoes changes in appearance and taste so obvious to the milker that it is almost invariably excluded from human use. The high incidence of acute streptococcal diseases in the horses of large industrial stables and cavalry depôts does not appear to be related to human ill health. Similarly, the cases of acute pemphigus in humans handling animal or animal products collected by Pernet and Bullock in 1896 are suggestive, but not conclusive of, streptococcal infection of animal origin. T. Smith[29] states that *Streptococcus pneumoniæ* (pneumococcus) is not infrequently the cause of disease in animals, and Balzer[30] has isolated a strain from three cases of septicæmia in calves which proved serologically identical with a human strain. E. Palier[31] has recently advanced the theory that the house mouse is the chief agent in the transmission of pneumococcal diseases.

The recent work in the U.S.A. of Jones and Little has recalled the well known "Hendon outbreaks" of scarlet fever. They report two cases of mastitis in cows due to hæmolytic streptococci which, in a series of cultural, antigenic, and pathogenic tests, gave results similar to those obtained from true scarlet fever streptococci. The milk of the first cow was related to an epidemic of scarlet fever, but no such relationship was proved in the second case. The conclusion to be drawn from the work of Jones and Little, and one which is well known to veterinary pathologists, is that some cases of bovine mastitis are due to streptococci similar to, but not necessarily identical with, the streptococcus of scarlet fever. Since J. McFadyean[32] expressed dissent against the attribution of the Hendon milk-borne scarlet fever to scarlatinal infection of cows, no evidence has been produced showing conclusively that scarlet fever is derived from the scarlet fever virus excreted in the milk of a cow affected with the virus. Diseased man is yet the only proven source of infection of milk.

Bacillus bronchisepticus.—This, as reported by T. Smith[29] in 1913, is a common cause of respiratory catarrh in dogs, cats, rabbits and guinea-pigs. J. P. M'Gowan[33] in 1911 isolated the organism in pure culture from the nasal discharge of his laboratory assistant, who was in constant contact with rabbits and guinea-pigs artificially infected with the disease. J. H. Brown[34] more recently isolated the organism from a girl with pertussis, and from the nares of a rabbit which had been fondled by his patient. Brown suggests that catarrhs in children are commonly contracted from pet animals.

Pfeiferella mallei Group.—A recent discussion[35] revealed many deficiencies in our knowledge of the pathogenesis of glanders and of the group of organisms to which *Pfeiferella (bacillus) mallei* belongs. Once very common,

glanders has been reduced within the last 20 years to a rare disease in temperate climates. This reduction has been due to veterinary supervision assisted by the reliable diagnostic agent, mallein. The disease is transmitted to man from glandered equines and, very rarely, by infected human clothing; there appear to be no records of infection conveyed by carnivora, which contract the disease through eating infected horseflesh. Professor Gaiger[36] has described his own sufferings, lasting 52 months and involving 82 operations, following infection when examining the exudate of a glandered pony in India. His experiences, which forcibly illustrate the dangers to the laboratory investigator, are particularly interesting since "after eight months apparent recovery, a severe attack of malarial fever caused a relapse which took a further period of one year and ten months to overcome." Gaiger is assured that his infection occurred via the alimentary canal.

A. Whitmore[37] isolated *Pfeiferella* (*bacillus*) *whitmori* from a case of melioidosis—a glanders-like and usually fatal disease of man recorded as yet only in countries bordering the Indian Ocean and recently reviewed by W. Fletcher.[38] The clinical manifestations in man are recognised as acute septicæmic, enteric, pneumonic, and chronic granulomatous forms, and may include glanders-like skin eruptions. The disease occurs naturally in rodents, or in cats and dogs preying on rodents, and man apparently is infected by way of the alimentary canal through ingestion of food contaminated by the excreta of diseased rodents. A. T. Stanton, W. Fletcher, and S. L. Symonds,[39] in 1927, reported a mild type of the disease in a horse from which the causative organism was isolated.

Actinomyces.—These are widely distributed in nature, and the group contains many varieties pathogenic to the herbivora, swine, dogs and man. For example, as reported by J. H. Wright,[40] *A. bovis,* the cause of bovine actinomycosis, has been isolated from the lesions in man, and several cases in men having regular contact with diseased cattle are cited by L. Hektoen.[41] However, direct transmission from diseased animals or their products to man has not been established.

Bacillus necrophorus.—This organism is not only a common secondary invader of existing lesions, but produces specific necrotic lesions (necrobacillosis) in domesticated and wild animals, and birds: E. Césari[42] has reviewed the literature of the organism, which appears to infect man only very rarely. Schmorl accidentally infected his hand with a culture, and Ellermann has reported a fatal infection of a child.

Diseases due to Spirochætes.

Spirochæta obermeieri.—This and other closely related species producing human relapsing fever are transmitted from man to man by blood-sucking ticks (*Ornithodorus* species) and the body louse. In 1926, A. Z. Paramo[43] recorded five cases in man transmitted by the ixodide ticks of swine; these animals, however, are not known to be infected under natural conditions by the relapsing fever spirochætes.

Spirochæta morsus muris.—In nature this spirochæte produces a septicæmia in rats, mice and occasionally ferrets and cats. Man, bitten by an infected animal or scratched by a cat (as recorded by K. Yamada,[44] in 1917), develops fever of a relapsing type. The disease (rat-bite fever) has a wide distribution, though only a few cases have been recorded in Great Britain.

Leptospira icterohæmorrhagicæ.—This organism produces leptospiral or malignant jaundice in dogs as identified by Uhlenhuth and Frome,[45] and in England by C. C. Okell, T. Dalling, and L. P. Pugh.[46] G. W. Dunkin and P. P. Laidlaw[47] have isolated the organism from a diseased fox. It is suggested that the disease is transmitted to dogs and man by the soiling of food with the urine of infected rats, but both the human and canine disease may occur independently of rats. Though cases of human infection (Weil's disease) associated with jaundiced dogs have been recorded (for example, by C. C. Okell[48]), transmission from dog to man and vice versa is as yet unproven; furthermore, it is not known that the human and canine strains of leptospira are identical. Since the organism is excreted in the patient's urine, it is highly probable that the diseased dog is the carrier, accounting for the epizootics commonly found in kennels.

Diseases Due to Filtrable Viruses.

Foot-and-Mouth Disease.—This highly contagious disease of cloven-footed animals is not infrequently recorded in man. J. A. Arkwright[49] who critically reviews the literature, states: "The diagnosis of foot-and-mouth disease in man can only be conclusively established by producing in a susceptible animal local and generalized vesicles recognisable by one familiar with the disease, and by showing that immunity to the same type of foot-and-mouth disease results." He finds that "these criteria have never been satisfied," but is prepared to accept two records as establishing infection of man by the virus.

Vesicular Stomatitis.—This acute contagious exanthema of the buccal mucosa is confined to horses. Clinically, it resembles foot-and-mouth disease. Recent studies have been recorded by W. E. Cotton[50] and P. K. Olitsky.[51] Cases of its transmission to man, attendants of sick animals, are referred to by Hutyra and Marek.[52]

Pox.—This rare disease of sheep, goats, swine, and camels is apparently absent from Great Britain. Cow-pox (vaccinia) is manifested on the skin of the teats and udders. It spreads rapidly through a herd, being transmitted from cow to cow by the milkers, who may be infected by inoculation of their hands. The milk is also another source of human infection through its contamination with desquamated pocks; there is no evidence that the virus is excreted through the udder. The relationship of the animal poxes to small-pox (human variola) remains in dispute; for example, vaccinia virus immunizes man against variola and vice versa, whereas sheep pox virus fails to immunise cattle against vaccina and vice versa. The pox described by older writers in the horse was probably confused with vesicular stomatitis.

Rabies.—Owing to the strictly enforced quarantine orders, this disease is prevented from entering Great Britain, whence it was eradicated in 1902, as a result of the muzzling orders. In other countries the disease exists naturally in the dog tribe, and is probably endemic in the yellow mongoose and genet cat of South Africa, the bite of the rabid animal being the method of transmission to man and domestic animals.[53]

Diseases due to Leishmania.—*Leishmania canis,* the

cause of leishmaniasis of dogs in the Mediterranean littoral, is probably identical with the *Leishmania donovani*, the cause of kala-azar in man. The disease in man is believed to be transmitted by fleas which have bitten dogs.

Diseases due to Rickettsia Bodies.—These bodies are recognised as the causal agents in Rocky Mountain spotted fever, a typhus-like disease of man, transmitted by the adult of *Dermancentor venustus*. This tick is found on a variety of mammals though rodents are its natural host. Domestic animals appear to be insusceptible to the disease.

Diseases due to Miscellaneous Organisms.

Cryptococcus farciminosus.—This organism, one of the blastomycetes or fungi imperfecti (W. Ota[54]), is the cause of epizootic lymphangitis, a chronic contagious disease of equines which is so prevalent in Asia and the Mediterranean littoral. The disease was introduced into England by horses returned from the Boer War, but was soon eradicated. A few cases of human infection through direct contact with diseased horses have been reported. *C. farciminosus* closely resembles *Histosplasma capsulatum*, identified in America as the cause of histoplasmosis of man, and not as yet known to infect animals.

Sporothricosis.—This chronic lymphangitis of horses in the tropics appeared for a short time in Great Britain among horses imported during the War. The disease has been transmitted occasionally to man, the sporothrix of the equine disease being probably identical with *S. beurmanni*.

Coccidioides immitis.—This organism, the cause of oidiomycosis or coccidiodal ganuloma in man, has been isolated by L. T. Giltner[55] from the bronchial and mediastinal glands of cattle slaughtered for food in California. Giltner records the belief of several observers that man contracts infection from animals.

Balantidium coli.—This common inhabitant of the intestine of swine, though normally non-pathogenic, occasionally produces colitis. It is transmitted to man through contaminated food or water producing dysentery which sometimes proves fatal.

Diseases due to Ecto-Parasites.—Many skin-infecting species of animals parasitic to man have been recently described, for example, ringworm, favus and the mange-parasites (J. H. Sequeira[55]) the red-mite (A. Castellani[56]) and the arachnids (S. Hirst[57]). *Linguatula rhinaria* is a widely distributed degenerate arachnid, the adult living in the nasal cavity of the dog. Occasionally the eggs are ingested by man or other animal intermediate host, and the embryos, hatching in the stomach, pass through the intestinal wall to encyst in some organ; eventually the larva migrate to one of the body cavities.

Diseases due to Helminths.—Certain strongyles of animals are found occasionally in man. Swine are the intermediate hosts of *Trichinella spiralis*, a nematode of rodents, man being infected by eating improperly cooked pork. Swine also are the intermediate hosts of the *Cysticercus cellulosæ* of the *Tænia solium* of man, who is infected by eating "measly pork." The latter parasite, uncommon in Great Britain, is commonly confused with *Tænia saginata* of man, of which the *Cysticercus bovis* produces "measly-beef." The ova of certain human helminths may be transported passively by animals, for example, ova of *Ankylostoma duodenale* are ingested by swine and spread in their fæces. Recently H. R. Dew[58] has published a review of present-day knowledge of hydatid disease. Several species of adult flukes are parasitic both to man and animals.

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33*Jour. Pathol. and Bacteriol.*, 1911, xv, 372.
34*Johns Hopkins Hosp. Bull.*, 1926, 147.
35*Proc. Roy. Soc. Med.*, 1928, xii, 989.
36*Ibid.*, 996.
37*Jour. of Hygiene*, 1913, xiii, 1.
38*Proc. Roy. Soc. Med.*, 1928, xxii, 990.
39*Jour. of Hygiene*, 1927, xxvi, 33.
40*Jour. Med Research*, 1904, xiii, 349.
41*Internat. Clinics*, 1900, iv (9th series), 110.
42*Rev. Pathol. Comp.*, 1924, xxiv, 695.
43*Med. ibera*, 1926, i, 29.
44*Trop. Dis. Bull.*, 1917, xiii, 340.
45*Zeits. Imm. Forsch.* 1919, xxviii, 1.
46*Veterinary Journ.*, 1925, lxxxi, 3.
47*Med. Research Council Rep.*, 1924, 31.
48*Proc. Roy. Soc. Med.* (Compar. Med. Sect.), 1924, xviii, 17.
49*Lancet*, 1928, i, 1191.
50*Jour. Amer. Vet. Med. Assoc.*, 1926, lxvi, 319.
51*Filterable Viruses* (by T. M. Rivers), 1928, 224.
52*Special Pathology*, 1926, i.
53*Brit. Med. Jour.*, 1927, i, 1077.

Some Principles of Hæmatology.

By W. P. Blount, M.R.C.V.S., Centenary Post-Graduate Fellow, Royal (Dick) Veterinary College, Edinburgh.

In the consideration of the blood picture it has to be remembered that, as a circulating fluid, blood is brought into contact, directly or indirectly, with every tissue of the body, which means that it is subject to subtle influences constantly altering its characters. The interpretation of these changes may be difficult, especially as there are physiological variations, but experience has shown that, as a rule, there are very definite factors which indicate and differentiate the normal from the abnormal. Blood may be considered therefore as the mirror of the health of the individual, reflecting in a very fine degree, by alteration in composition and character, the condition of its environment. The hæmatologist, by examining the number and type of cells, assumes the responsibility of indicating the probable cause of any variation from the normal and may frequently be of real value in diagnosis or in estimating the probable prognosis of disease.

Variations of the red formed elements may be due to physiological or pathological causes, effects of which exhibit themselves in the number or types of circulating cells. *Erythrocytosis,* or actual increase in the number of red corpuscles, occurs through stimulation of the erythrocytopoietic tissues. It is observed normally in animals which live at high altitudes, where there is a diminished supply of oxygen, and Neser has observed that it occurs also in horses which receive regular exercise (a statement which may explain the existing belief that the normal number of red corpuscles in man is probably nearer six millions per c.c. than five). At one time it was suggested that there was an actual increase in size of the red corpuscles during exercise, but an elaborate experiment by Dryerre, Millar, and Ponder disproved it.

Where there is a loss of fluid from the body (anhydræmia) *polycythæmia* results, the corpuscles become concentrated and a relative increase occurs. This is seen in severe sweating, certain heart disease, exudations and effusions, in emphysema and in poisoning by phosphorus.

Oligocythæmia (deficiency of red corpuscles) is observed in several physiological states, the chief of which are:—certain periods of pregnancy, after hæmorrhage, in old age and after removal of the testicles. It is customary to assume that the female of the species has fewer red elements than the male. As has been pointed out by Fish and Hayden, many of these alterations may be associated with the activity of the endocrine organs.

In malnutrition, which may be either physiological or due to disease, there is an *anæmia* (a term usually assumed to indicate the diminution of both red corpuscles and hæmoglobin in the body) which is seen also in tuberculosis, chronic infections, and in many parasitic diseases.

The importance of the anæmias, however, is not only in the diminution of red corpuscles but in the presence of abnormal cells. In the adult mammal it will be remembered that the normal circulating red element of the blood is the non-nuceated *red corpuscle* (red cell, erythrocyte, normocyte, erythroplastid, etc.) whereas in the fœtus the red elements are fully nucleated. They may be of two types, depending upon their origin: *megaloblasts* arising from the liver, and *normoblasts* or *macronormoblasts* from the marrow. As soon as extra-uterine life is commenced the *erythroblasts* (a term which includes every type of nucleated red cell) disappear at a rate which appears to run parallel to the activity of the animal, so that in from a few days to some weeks the blood may be quite free from nucleated red cells. There are several changes which appear to be associated with the loss of the nucleus. Schilling believes that some of the cells shed their nucleus whole, but there is more evidence to show that it undergoes degenerative changes, apparently going into solution in the surrounding cytoplasm of the cell. It is not difficult to detect a similar series of changes in animals suffering from anæmia. The abnormal, hurried stimulation of the marrow introduces nucleated red cells into the circulation. Further, those cells which do appear are usually lacking in hæmoglobin, so that the blood picture is termed hypochromatic. It is interesting to note that, although in man a hyperchromatic blood picture is occasionally encountered, in association with the presence of megalocytes (typical of pernicious anæmia) no such condition is recorded of animals. The reintroduction of megalocytes into the general blood stream of the adult is an apparent reversal to embryonic type.

Variations of the Leucocytes.—The leucocytosis which accompanies severe infections is a well-known phenomenon, but the modern method for the detection of the degree of marrow stimulation needs some explanation.

When an increase of white cells occurs it usually affects one type of cell more than any of the others. The following is a brief summary of these changes:—

The five varieties of leucocytes in health are fairly constant both in absolute numbers and in relative proportion, but these features differ in every class of animal. Further, it must be recognised that there are morphological differences in the same cell of different animals, making it absolutely essential for the observer to be familiar with the blood of each species.

It is recognised that the majority of acute inflammations are due to cocci—pyogenic organisms which have a specific stimulus for the neutrophile leucocytes; consequently *neutrophilia* (polynucleosis, or increase of neutrophile polymorphonuclear leucocytes) occurs in the majority of acute infections.

On the other hand, bacillary infections of the tubercle and coli-typhoid type appear to stimulate the lymphatic mechanism. Protozoal infections (malaria, syphilis, amœbiasis, leishmaniasis, etc.) cause an increase of the monocytes, whereas helminth infestations give an eosinophilic reaction. There are many combinations of these reactions, a typical example being the neutrophilia which replaces the lymphocytosis of tuberculosis when secondary infection occurs.

It is known that the mother cell of the neutrophile is the myelocyte of the bone marrow with its rounded nucleus; and further that the typical polymorphonuclear neutrophile

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54 *Ann. de Parasitol.*, 1925, iii, 71.
55 *Jour. Agric. Research,* 1918, xiv, 533.
56 *Proc. Roy. Soc. Med.* (Trop. Dis. Sect.), 1924, xviii, 2.
57 *Brit. Museum Series,* 1917, No. 6.
58 *Hydatid Disease,* 1928.

nucleus of the blood stream has derived its complicated nuclear conformation from indentation and segmentation of this myelocyte nucleus. Further, Hirschfeld has shown that *in vitro* the neutrophile nucleus undergoes hypersegmentation with increasing age, so that it is usual to assume that the more complex the nucleus (increased segmentation) the older the cell. Now it is known that in infections there is a flooding of the blood stream with cells of the neutrophile type with less complex nuclei, which, it is assumed, means that the bone marrow is " working overtime " to counteract the " invaders." The more intense the infection the greater the reaction of the marrow; and, although there may be an actual decrease in the number of leucocytes after a time (reactionary fatigue) their nuclear characters indicate that they are of the myelocyte or premyelocyte types.

Arneth, about 1900, conceived the idea of forming an index of marrow stimulation. He classified the cells according to their nuclear complexity and found that they were present in reasonably constant proportions. He has since carefully and laboriously enumerated the changes which occur in nearly every disease of importance, utilising his criterion not only for the neutrophiles but for *every* type of leucocyte. The value of the Arneth count is indisputable, but unfortunately in this country it has not received the credit it deserves, owing to a misinterpretation of the method of classifying the cells. There have been several imitations of Arneth's count, but none are free from fault.

Neutrophilia was believed to be an accompaniment of normal digestion, some observers associating the leucocytosis with increase of lymphocytes; but it is now held that there is no true leucocytosis of either digestion or moderate exercise, any alteration observed being associated with either a redistribution of the cells due to blood vascular changes, or with a normal diurnal variation of unknown origin.

Physiological neutrophilia occurs, as a transitory post-hæmorrhagic condition, in infancy, late pregnancy, and in animals with a dietary composed chiefly of meat.

Eosinophilia is observed, in addition to helminthiasis, in hydatid cysts, asthma, certain skin diseases (where the greater the area of skin involved the higher the percentage of eosinophiles), and after feeding with liver.

Increase of basiphile leucocytes *mast cells* occurs rarely and is of unknown significance.

Lymphocytosis is found in uncomplicated tuberculosis, in catarrhal conditions, in certain thyroid and thymus states, and physiologically after prolonged mental exercise. After exposure to X-rays and in advanced cases of tuberculosis (where there is excessive destruction of lymphatic tissues) it is common to find a diminution in the number of lymphocytes.

Monocytes are present in the blood in increased numbers in some stages of Hodgkin's disease, after repeated small doses of X-rays, in endocarditis lenta, and in the so-called monocytic leukæmia.

In severe infections there are several degenerative changes to be seen in the leucocytes. The nuclei become pyknotic and have their periphery much less well defined, the neutrophile granules of the cytoplasm become aggregated, vacuoles (fat spaces?) or special toxic granules (the so-called *Döhles bodies*) may be present, and the cytoplasm may assume deep basic tints presenting the *Tuerck* cell appearance.

It has finally to be realised that there are definite *post-infective* changes. An acute infection with pyogenic organisms produces an immediate neutrophilia and probable monocytosis, with diminution of the lymphocytes and usually absence of eosinophiles. As recovery ensues the neutrophilia subsides and is replaced by a post-infective lymphocytosis which may last several weeks. The monocytosis is short lived and is usually followed by a temporary increase of eosinophiles. These changes are characteristic of the pyogenic organisms but are not necessarily associated with pus formation.

By repeated examination of the blood, therefore, it is possible to estimate the course of a disease and give valuable help in the suggested prognosis. It should be emphasised that a single blood examination cannot be expected to produce information of great value, it is repeated examinations which are of definite use, just as in the utilisation of the thermometer or stethoscope.

STOP PRESS.

ROYAL COLLEGE OF VETERINARY SURGEONS.

COUNCIL ELECTION RESULT.

The following result of the R.C.V.S. Council Election was announced at the Annual Meeting of the Royal College, held in Dublin, on Thursday :—

Name.	*Votes.*
Brittlebank, J. W.	944
Abson, J.	895
Livesey, G. H.	817
Coleman, J. C.	788
Hughes, R.	770
Walker, G. K.	738
Spreull, A. (Senr.)	679
Wragg, W. G.	659
*Simpson, R.	655
*Rabagliati, D. S.	623
*Nairn, W.	603

The above secured election.

The unsuccessful candidates were Messrs. J. L. Cormack (596), W. D. Rees (588), W. G. Burndred (538), and H. Kirk (465).

* Elected to take the places respectively of J. McKinna (deceased), W. S. King (resigned), and J. H. Carter (deceased).

The Veterinary Record.
June 7th, 1930.

The International Veterinary Congress, London, August 4th-9th, 1930.

Most of our readers will remember that on the day before the outbreak of the World War, in 1914, the opening meeting of the Tenth International Veterinary Congress was held, and that it was necessary to declare the Congress closed on the following day without the reading of a single paper. At the closing meeting, the President, Sir John M'Fadyean, expressed the hope that peace in Europe might soon be restored, and that at no distant date the next Congress would meet in happier circumstances. No one then dreamed that sixteen years would elapse before it would be possible for the veterinarians of the various nations of the world to meet again in amity. But, happily, that time has now arrived, and the occasion of the forthcoming congress deserves on that account alone to be celebrated in a special manner.

The Congress of 1914 was to be the Jubilee Congress, for the first Congress had been called fifty years earlier by an English veterinarian, Professor John Gamgee. There had been raging in Europe for many years epizootics of rinderpest and pleuro-pneumonia, and the main purpose of the Congress was to discuss the incidence of these and other plagues, and the best methods of combating them. Preventive Veterinary Medicine has always been one of the chief subjects of discussion at the Congresses since held. They have been as it were the mobilisation of the veterinary forces of the whole world in the conflict with animal diseases.

The Congress of 1914 was prepared in high hopes; its sudden end was a bitter disappointment to all those who had worked so loyally for its success. The forthcoming Congress is being prepared with equal vigour and thoroughness. Eighty papers are to be presented by reporters from more than twenty different countries: France, Germany, Italy, Belgium, Holland, Switzerland, Norway, Sweden, Spain, Austria, Hungary, Czechoslovakia, Poland, Roumania, Egypt, French Soudan, Java, Argentine, Canada, U.S.A., and Great Britain and Ireland. National Committees for the promotion of the Congress have been formed in twenty-four countries. Official Delegates have been appointed by thirty foreign governments, and many more are expected. Already four hundred Ordinary Members have enrolled, and it is hoped that the total number will exceed fifteen hundred. From the scientific point of view, therefore, the 1930 Congress promises to eclipse all others. On the social side, as we have already announced in these columns, the British Government has undertaken to give an Official Banquet to Government Delegates, and the Corporation of the City of London has very generously decided to give a Reception at Guildhall. These marks of official recognition are very gratifying. The Organising Committee has planned other functions: a Reception at Mayfair Hotel on Sunday evening, August 3rd, and a Conversazione at the Natural History Museum on Tuesday evening, August 5th, at both of which there will be music and refreshments. Admission to these functions will be free to all enrolled members. The expense of carrying out such a programme will be very heavy, and could not possibly be met out of the Members' subscriptions. Fortunately, the balance left over from the Entertainment Fund raised for the last Congress has been preserved intact and has grown with added interest, and it is hoped that this sum will enable the Committee to carry out all its plans without the need of calling on the profession for any further financial assistance. But the success of the Congress will still depend upon the number of members enrolled, and we confidently appeal to all veterinary surgeons in these islands to enter their names without delay. Of the members already enrolled, the great majority are foreigners, but for a Congress held in their own country, brought to their own doors, it would be inexcusable if the number of British members did not exceed those from any other country. To those who can actually attend the Congress there will be the inestimable advantage of meeting veterinarians of the highest repute from all over the world, and there will be the gratification to be gained from the various social functions, experiences to which many will look back with pleasure and satisfaction for the rest of their lives. But even for those who cannot attend there will be an ample return for the outlay of the subscription. All papers to be read will be circulated before the Congress, and the final volumes of proceedings will be sent gratis to all members. They, in themselves, will form a small encyclopedia of up-to-date veterinary knowledge on all the most pressing problems of the day, the value of which will far exceed the cost.

Clinical and Case Reports.

Cleft Palate in Calf.

By J. R. Baxter, M.R.C.V.S., Lechlade.

The accompanying photograph illustrates a striking case of cleft palate in a calf, and was exhibited by me at the meeting of the Royal Counties Division, N.V.M.A., held at Swindon on April 25th.

This calf was a few days old and was brought into Birmingham abattoir for slaughter for veal, in very good condition. The palate was completely cleft.

The Tuberculin Test: An Experience.

By W. E. Blackwell, M.R.C.V.S., Towcester.

Before applying the tuberculin test, I have often been asked these questions:—"Does this injection have any effect on the cows?"; "Will it cause them to slip calf, or 'go screwy' or anything like that?" My answers have previously been to the effect that I had not encountered any such consequences of the test. I have seen cows off their feed for a time during the course of the test, and also their milk yield has sometimes been adversely affected for a while, but I have the impression that these manifestations occur principally in the reactors which have registered a high temperature after the hypodermic method. I remember an old cow I tested along with 13 others. I laid a bet with the owner that if any of them did react, this old cow would certainly be one of them. I lost the money. She improved in condition afterwards, almost beyond recognition.

Quite recently I tested three pedigree dairy shorthorns. One of them was due to calve in a week's time. The method employed here was the double intradermal.

This particular cow showed a positive reaction, twenty-four hours after the first inoculation. When I arrived at the forty-eighth hour my client said:—"We've had an accident since you were here last time. The red cow calved last night at ten o'clock but she's going on all right, I think."

That accident occurred thirty-six hours after inoculation and there was no doubt in my client's mind (nor in my own, for that matter) that the inoculation was responsible for the accident. The owner remarked that he knew it upset them very much at times, and he went on to relate how a heifer I had tested for him previously had fallen to pieces afterwards.

In view of that experience, and the information duly conveyed to me, I am persuaded that it is unwise to test a cow either just before or just after calving, say a week each way. The other two cows passed the test. One of these was responsible for another surprise for me and for the owner too. When he purchased this cow about a year ago, she had failed to pass the test, and he got her cheap for that reason. To-day she had succeeded in passing the test, and the owner was rather sore about it, because he had fixed a price on her before the test, and now he was thinking in bigger figures.

I do not suppose this experience of mine is necessarily unique, but it is very interesting; nevertheless, I may say that I like the double intradermal method. One can perform the operation with ease and precision, when one possesses the right type of syringe.

Penetration of the Neck by a Cart Shaft.*

By F. J. Kinghorn, Glasgow Veterinary College.

Case I.

Subject.—A brown draught gelding, aged approximately 19.

History and Examination of the Patient.

Wednesday, 13th.—The animal was carting stones and had been drawn up on a steep incline facing uphill. He hung forward in the collar, with the result that the pressure of the collar on the windpipe began to choke him. He became alarmed and attempted to swing round to the off side and bolt. In doing so, his feet slipped and he fell on the off side with his head pressed against a bank of earth. The cart moved towards his head and the weight of the load drove the shaft completely through the neck and some four inches into the bank. The horse freed himself by his struggles and rose to his feet; he was loosed from the cart and taken home.

On examining the horse an hour later, an oval wound, about 4-in. by 2-in., was found on the near side of the neck near the jugular furrow and some 4-in. below the cervical vertebræ. On the off side an irregular wound of somewhat similar dimensions marked the point at which

* Cases submitted for award under the N.V.M.A. Clinical Prize Scheme for Students (1929).

the shaft had come out and gone into the bank. Daylight was visible through the wounds and the jugular could be clearly seen on either side, as could the trachea at a low level. The jugular on the near side was somewhat dilated, due probably to being struck a glancing blow by the shaft in its passage through the neck. The animal had not lost a great deal of blood and did not appear to be greatly distressed. Pulse and temperature were subnormal.

Treatment.—The wound was thoroughly washed out with a solution of lysol and warm water, using a thoroughly clean stomach tube and pump. Having cleansed the wound in this fashion, four small iodoform pessaries were placed in the depths of the wound. As a prevention against tetanus a dose of tetanus antitoxin was given. A clean broad bandage was applied over the wound and tied so as to prevent it slipping, and the horse returned to the loose box.

Thursday, 14th.—The animal appeared brighter and was, according to the owner, taking food, although inclined to choke when eating hay. The temperature was 102·2 and the pulse and respirations were normal. On removing the bandage the wound appeared clean and healthy, and there was no visible swelling. The animal could move the head and neck freely and, in spite of considerable laceration of nerves, there was no evidence of any paralysis in the area. The wound was cleaned as before, four iodoform pessaries were introduced and the bandage replaced. A supply of pessaries was left with the owner and he was given a stomach pump and tube and instructed to carry on the treatment himself.

March 22nd.—A message was received from the owner to come at once. On arrival, the horse was found to be bleeding profusely from the wound on the near side and had lost a great quantity of blood. The pulse was weak, temperature subnormal and the visible m.m. pale and anæmic. The wound was cleaned and examination revealed a transverse tear in the jugular on the near side. Due to irritation in the healing wound, the horse had started to rub his neck and it was surmised that in doing so a nail or projection of some sort had entered the wound and lacerated the jugular. Examination of the loose box revealed a projecting nail on the manger to which adhered some blood-stained hairs and skin. This was removed to prevent a recurrence.

The wound was thoroughly cleaned and packed with sterile gauze and the skin sutured. The animal was then given 5 c.c. of adrenalin subcutaneously. As he appeared eager to drink, a pail of water was given to him containing one ampule of a concentrated solution of æther nit. Six ampules were left with the owner and he was instructed to give one twice daily in the drinking water. Later in the day a message was received saying that the stitches had burst and that the bleeding had recommenced. On arrival, more packing was inserted and fresh sutures applied.

March 24th.—The animal appeared considerably improved and was eating well. Owing to the tight packing, however, he had difficulty in swallowing. The stitches were removed and all packing, clots, etc., taken out. The wound was thoroughly irrigated with the stomach pump and tube, and three pessaries inserted. The owner was instructed to carry on the treatment and not to allow the wound to close too quickly.

No further visits were made until sent for some time later by owner to see the wound. Exuberant granulations had occurred and were projecting from the wound. These were burned down and the owner instructed to allow the wound to close.

The patient made a rapid recovery, and on making a visit in June he was found working in the field. The wounds on either side of the neck had completely healed and could scarcely be seen. The animal is in good condition and appears none the worse for his experience.

Remarks.

In the writer's opinion, the remarkable facts presented by this case are :—

(1) The splendid recovery, in spite of the age of the patient and the amount of blood lost, and the shock which was bound to follow the accident in the first case.

(2) The entire absence of any suppurative condition in the wound, in spite of the nature of the object that caused it.

Radial Paralysis in the Dog.*

By J. Adamson, Junr., Royal Veterinary College, London.

Subject.—Wire-haired Fox-terrier, aged two years.

History.—The day previous to our examination this dog was struck by a motor-car, but none of the wheels passed over him.

Symptoms.—The shoulder and elbow of the left fore limb were held extended, the carpus flexed, and when the dog moved the toes were dragged along the ground. When the carpus was held in an extended position he was able to support his weight on the limb ; on removal of the assistance the former position returned. A small wound, situated about one inch above the elbow joint on the inside of the arm, was also present. This was thought to have no relation to the other symptoms.

Diagnosis and Prognosis.—The diagnosis given was paralysis of the radial nerve due to pressure, with good prospects of recovery.

Treatment.—The treatment consisted of rest and massage of the limb. No appreciable improvement could be noticed at the end of the first week, but after a fortnight he began to use the limb in progression. Complete recovery eventually took place.

Early Anæsthetics.

The celebration of the centenary of Henry Hill Hickman, the English pioneer of general anæsthesia, has been the subject of much publicity and has made familiar a name scarcely heard of before by many members of the medical and pharmaceutical callings—to say nothing of the general public. Surgical anæsthesia of a sort was practised long before Hickman's researches. Homer referred to "Nepenthes" or sedative draughts for relieving the pain of wounds, and the early Chinese, Assyrians, and Egyptians made use of narcotic drugs for deadening pain. The use of carbon dioxide for local anæsthesia was known and practised centuries ago, according to Dr. Buxton's "Anæsthetics : Their Use and Administration." It has been suggested that the effects produced by the inhalation of the fumes of the narcotic preparations used in mediæval and earlier days to induce anæsthetic sleep were due, primarily, to the vaporisation of the alcohol in the wine generally used as a vehicle.—*Pharmaceutical Journal.*

Reports.

[**Gold Coast Colony**. Reports of the Veterinary Department (Beal, Capt. W. P. B., Principal Veterinary Officer) for the years 1927-28 and 1928-29. 56 pp. 1929. Accra. Government Printing Office. Price, 2s.]

These are the final reports issued by Captain Beal before his retirement from the post of Principal Veterinary Officer to which he was appointed in 1920. Prior to that date there was only one veterinary officer in the country. The staff now comprises five veterinary officers and an inspector of livestock, together with eight African veterinary assistants. Reference is made to the work of the school which was established a few years ago for the purpose of training the African in veterinary work for the Government service and which it is hoped will eventually meet the needs of the colony in this connection. Further expansion of the European staff is apparently limited by financial considerations.

Much of the time of the sectional veterinary officers is spent in travelling, which occupies on an average twenty days a month. In addition to purely veterinary work considerable attention is devoted to the improvement of the livestock industry. Castration of "scrub" cattle, sheep and goats is carried out as far as possible and male animals of an improved type are distributed for stud purposes. Many of these are bred at the Government stock farms and the supply is supplemented by the purchase of Zebu bulls from French Territory. By crossing the latter with the unhumped indigenous cattle it is possible to obtain stock of greater size and of increased resistance to disease. Still further improvement is expected to result when these animals are mated with European crosses.

Pig breeding has been introduced into the colony, where it has attracted considerable interest among the natives. A number of pure-bred English poultry have also been distributed.

The Department has undertaken propaganda in connection with the hide and skin trade and has arranged demonstrations at various centres as to the proper methods of flaying, drying and grading with the result that exports have increased and better prices are obtainable.

Attention has also been given to the question of ensuring an adequate supply of fodder during the dry season and it is proposed to arrange demonstrations of the preparation of silage in the thickly populated cattle areas. With the object of providing green food in the dry weather some experiments have been made with kudzu imported from Japan and preliminary trials have shown that this plant remains in leaf throughout the hot season.

Contagious Diseases.

Cattle Plague.—This is the most serious disease encountered in the colony and is especially prevalent in the Northern Districts. It is believed that infection is frequently introduced from the neighbouring French Territory, which is not under very strict veterinary supervision. A Cattle Patrol Service is maintained along the boundary to ensure as far as possible that animals are not imported except through the quarantine stations, but in spite of this a certain amount of smuggling occurs. The Colony is dependent on outside sources for its supply of serum, which has at times been insufficient to meet requirements. This situation will presumably be remedied when the proposed laboratory comes into existence. During the years 1927-28 and 1928-29 the losses reported numbered 6,678 (6·6 per cent. and 6,145 (6·44 per cent.) respectively.

Pleuro-Pneumonia.—The incidence of this disease appears to be increasing. In 1927-28 nine cases occurred and in 1928-29 there were 25 cases in addition to two outbreaks which were detected among imported animals in quarantine stations. Infected cattle are slaughtered immediately.

Trypanosomiasis.—An outbreak involving five cows and six horses was reported in 1927-28. At the Tamale Clinique seven cases were diagnosed in 1928-29 and an outbreak among donkeys was observed in the neighbourhood. During the former year a Commission was appointed to study the problem and it was decided in the first instance to make a routine examination of the blood of imported cattle at the quarantine stations. The incidence of infection was found to vary greatly in different herds but the results obtained during the first six months showed that trypanosomes were demonstrable on the average in about 4 per cent. of imported animals.

Anthrax.—Six cases were reported in 1927-28 and 27 in 1928-29.

Helminthiasis.—Mention is made particularly of flukes, armphistomes, *Cysticercus bovis, Ascaris vitulorum, Hæmonchus contortus, Œsophagostomum columbianum, Metastrongylus apri* and *onchocerca.* The most serious losses are due to hæmonchus, which is apparently very prevalent and is a grave hindrance to the expansion of sheep and goat breeding.

Epizootic Lymphanigtis.—Three cases were reported in 1927-28 but none in the following year.

Poultry Diseases.—Fowl cholera and fowl pox are reported to occur. Spirochætosis appears to be spreading.

Piroplasmosis.—Theileria mutans infection was detected in five animals at the Tamale Abattoir, during the year 1927-28. One case was detected in the following year and also a case of *P. bigeminum* infection.

Figures are given showing the number of animals killed at the Tamale Abattoir for each of the years under review, together with particulars regarding meat inspection.

The Livestock Census of the country is approximately 3,100 horses, 9,750 asses, 95,000 cattle, 350,000 sheep and goats and 16,250 pigs.

There passed through the various quarantine stations during 1927-28 42,234 cattle, 51,273 sheep, 10,561 goats and 642 horses. The figures for 1928-29 are 51,977 cattle, 79,031 sheep, 19,165 goats and 958 horses.

T. J. B.

Sheep stealing is reported to be prevalent in the Gretna area. Half-a-dozen flock-owners have suffered losses, but the offences have been carried out with such skill that searching investigation has failed so far to discover the culprits.

Divisional Report.

Royal Counties Division, N.V.M.A.

"Cattle Practice" Meeting at Swindon.

The fact that the "railway town" is, somewhat incongruously, the centre of a great cattle-rearing and milk-producing area, rendered it eminently appropriate as the place of meeting for this Division on April 25th, 1930, when the business was almost entirely devoted to the consideration of cases met with in cattle practice. An admirable paper on this subject by Mr. J. R. Baxter, of Lechlade, produced an informative and well-sustained discussion, both of which appear at the commencement of this issue of the *Record*, where they will be read with profit and interest.

The President (Major A. C. Duncan) occupied the chair, and there were also present:—Mr. J. R. Baxter, Mr. A. J. Beeson, Major R. C. Catmur, Mr. J. C. Coleman, Major J. J. Dunlop, Mr. E. J. Heather, Capt. J. R. Hewer, Mr. C. P. Inglis, Capt. W. L. Little, Lieut.-Col. G. Rees-Mogg, Major E. E. Seldon, Major F. J. Taylor, Mr. F. W. Willett, Mr. R. A. Willett and Mr. H. Bell (Hon Secretary). *Visitors*:—Messrs. G. Atkinson, W. T. D. Broad, B. Calmur, F. L. Cundell, C. E. Perry, W. D. Rees, J. Richardson, R. S. White and T. R. Yarrow.

The members having met at the Goddard Arms Hotel, Swindon, at 2.30 p.m., the minutes of the previous meeting, which had been published in the *Record*, were taken as read and were confirmed and signed.

Correspondence.—(1) From Messrs. J. H. L. Addis, J. Bell, R. E. C. Bullen, Capt. H. B. Collet, Mr. F. H. W. Cundell, Principal F. T. G. Hobday, Major H. C. Jagger, Mr. G. P. Male (President, N.V.M.A.), Mr. J. W. McIntosh, Lieut.-Col. P. J. Simpson, Capt. S. Villar, Col. G. K. Walker, Capt. E. C. Winter and Capt. D. Wyllie, apologising for absence. (2) From the Hon. Secretary of the Mid-West and South Wales Division, N.V.M.A., requesting the members of the Royal Counties Division to give their support to Messrs. Coleman and Rees at the forthcoming election to Council R.C.V.S.

Mr. C. E. Perry, the Hon. Secretary of the former Division, who was present as a visitor, and who was welcomed as such by the President, said that he had written that letter to them, on behalf of his society, who were putting those gentlemen forward as candidates for the Council of the Royal College and desired to secure the support of the neighbouring Divisions for their return. They would, of course, support Mr. Coleman, a member of their own Division, and he was equally confident that they would approve of Mr. Rees as a candidate, (Hear, hear.) The former was a country practitioner, and it was felt by his (Mr. Perry's) Division that there was a real need for greater representation on the Council of the governing body of the profession of that very large proportion of members of the profession who were country practitioners, and in these two (both of whom, he was glad to see, were present that day) they would be supporting very able and worthy candidates. (Hear, hear.)

Mr. Coleman said that, in support of the candidature of Mr. Rees, he would like to state that he had sat in Council with him and had found him a very valuable member. At the time when Mr. Rees was a member of Council he served on many important committees, where his thoroughness and knowledge were of the greatest help. It was quite by accident that Mr. Rees came off the Council, and he (Mr. Coleman) would like his fellow members of the Royal Counties Division to do their utmost to ensure his return at the next election.

The President observed, amid applause, that he was sure that the members would bear in mind the names of Mr. Coleman and Mr. Rees when they were wrestling with their voting papers.

Nominations for Membership.—On the proposition of Mr. Coleman, seconded by Mr. Hewer, Mr. T. B. Yarrow, of Swindon, was nominated as a member of the Division) as also was Mr. George Sutton, of the Ministry of Agriculture (stationed at Oxford), on the proposition of Mr. Heather, seconded by Major Taylor.

Morbid Specimens and Cases of Interest.

Mr. J. R. Baxter exhibited cervical vertebræ and ribs from a ten-year old hunter gelding. This horse was first noticed lame on August 12th last, with typical shoulder lameness, which persisted until September 9th, when he suddenly developed tetanic symptoms, all the muscles from head to tail being stiff, and the animal moving all in one piece. The membrana nictitans protruded and the animal looked, in fact, a typical case of tetanus. These symptoms gradually disappeared and except for stiffness in the off shoulder the horse went practically sound until March 7th, when he suddenly went down with apparent paralysis, and was destroyed. The cervical vertebræ and ribs exhibited were very light, and although he had not tested the horse he was suspicious of tuberculosis. The animal trotted practically sound to within six hours of its going down. Those specimens were unfortunately all that he could obtain.

Mr. Baxter also exhibited some photographs of cleft palate in a calf, and a tuberculous heart from a cow.

[One of these photographs (illustrating the cleft palate case) is reproduced in the Clinical and Case Reports Section of this issue.—Ed.]

Mr. R. A. Willett said that at the last meeting some very interesting specimens of splashed pork were brought forward. He was in Edinburgh recently, at the fine exhibition organised by the Health Committee of that city. In Edinburgh they used the captive bolt pistol, and as each pig was killed it was stuck, with the result that splashed carcasses were almost non-existent. It appeared that immediate sticking removed that objection to the use of the captive bolt for killing pigs.

The President observed that he did not know whether other members thought the same as he did about it, but he was extremely interested in those specimens of splashed pork that were shown at their last meeting, and shortly afterwards he asked a large butcher for his views, receiving the reply that he never got splashing with the Greener. Therefore he did not know now to what those splashes were due.

Replying to Mr. Coleman, Mr. Baxter said that there was no history of a fall in the case of the hunter, but there was a corner manger in his box and he thought at

first that the animal had slipped in getting up and had bumped his shoulder against the manger.

Mr. Coleman observed that he could not see, from the fact that there had been shoulder lameness, why those bones should be affected. He had two or three specimens at home of cases in which there had been fracture of the vertebræ without displacement and it was patent that complete fracture had been preceded by partial fracture. He was wondering if, in Mr. Baxter's case, there had been previous fracture without displacement, in which event there would be no paralysis, or, again, the animal being an old horse, whether rheumatoid arthritis had anything to do with it.

Mr. C. E. Perry stated that he recently made a *post-mortem* on a horse that he thought appeared to be suffering from tuberculosis of the bones of the neck, from which he had the satisfaction of verifying a diagnosis he made six months previously. At that *post-mortem* all the cervical vertebræ presented the same appearance as those exhibited by Mr. Baxter, but, in addition, he was presented with a beautiful case of tuberculosis of the spleen. In his opinion, therfore, the exhibit illustrated a typical case of tuberculosis of the neck bones.

Major Taylor asked Mr. Baxter if hare-lip was present in the case of cleft palate, receiving the reply that although there was no hare-lip, there was a distinct indication of a division.

Next Meeting.—The President extended an invitation to the members to visit Cirencester on the occasion of the Division's summer meeting (on the last Friday in July), and this was accepted with unanimity and appreciation.

Professor Wooldridge.—Proceeding, the President said that he was sure that the members would be glad to know that Professor Wooldridge, who had been very ill, was better. (Applause.) Professor Wooldridge was a member of their society, and they would all have been much concerned to learn, from the *Veterinary Record*, of his serious condition; equally would they be relieved to learn that he was now on the high road to recovery. (Hear, hear.)

Paper.—As there was no other business, he (the President) had pleasure in calling upon Mr. J. R. Baxter to give them his paper on "Notes on some Cases met with in Cattle Practice." [Mr. Baxter's paper, and the excellent discussion which it produced, appear at the commencement of this issue of the *Record*.—Ed.]

At the conclusion of the discussion, the President observed that he thought they might congratulate themselves on their meeting that afternoon. (Hear, hear.) They had had a very successful discussion and they should thank Mr. Baxter very heartily for coming there and giving them a paper which had caused all of them to think and some of them even to speak. (Laughter.) Their thanks were also due to those members who had brought forward specimens and cases of interest.

These votes of thanks were passed with acclamation, as was the paying of a similar tribute to the President for his conduct of the meeting.

Before the gathering dispersed, the members joined with their President in offering a very hearty welcome to their late Hon. Secretary, Major Robin Catmur, whom all were delighted to see present in an improved state of health after a prolonged absence through illness.

Following the meeting, the members were the guests of Messrs. Coleman, Hewer and Yarrow at an excellent repast, and those gentlemen were accorded the hearty thanks of the company for their hospitality.

H. Bell, *Hon. Secretary.*

Sheep Scab.

Sheep scab is caused by a parasite which lives on the skin of the sheep, and its existence in numbers causes the animal to lose condition and the wool to become of little or no value. The disease is so serious, because of its power of starting fresh infection on contact with other sheep, that it was made one of the scheduled diseases under the Diseases of Animals Acts, and there is a comprehensive Order dealing with it dated January, 1928. The fight against scab has, however, been going on much longer than that, but the Order of January, 1928, brings the provisions of the earlier Orders into one and revokes them.

Generally, the law requires that anyone who has in his charge or possession sheep or carcasses affected with scab must give notice of it immediately to the police. Veterinary surgeons are similarly required to give notice of any case which they come across in their practice, and inspectors of local authorities are instructed to serve detention notices on infected sheep so that they and the contacts shall not be moved about and become sources of further infection. The Order also requires that all sheep on premises where the disease is found shall be double-dipped in a suitable sheep dip in the presence of the inspector of the local authority, and, if necessary, otherwise treated. Other provisions require the cleansing and disinfection of pens, hurdles, carts, etc., and allow for appeals to the Minister in certain cases where the owner thinks he is being wrongfully treated. The remainder of the Order deals with regulations for sheep scab in what are called "Movement Areas" and "Double-Dipping Areas," that is, in those where sheep scab has been, or is still, known to be prevalent; these are general requirements applicable to all sheep within these areas.

It should be noted that "dipping" means the thorough immersion in a dipping bath of the whole sheep in an approved sheep dip. "Double-dipping" means that a second dipping shall take place not earlier than the eighth day or later than the fourteenth day after the first dipping, that is, in order to kill the mites which are hatched from eggs not killed by the first dipping. Thorough double-dipping is the only effective means of dealing with scab short of slaughter and destruction of the skins.

Now with that preliminary we may take a glance at the interesting history of the complaint. It is known all over the world wherever there are sheep, with the notable exception of one or two important sheep countries. It may surprise many English farmers to learn that it is now entirely non-existent in Australasia, having been eradicated therefrom many years ago. That was a great work considering the huge numbers of sheep that had to be dealt with, and is a tribute to the determination of the sheep farmers. They recognised that their success depended on eradication. New South Wales saw the last of it in 1866, and, later, Victoria, South Australia, Queensland, West Australia and Tasmania; it was eradicated from New Zealand in 1893. Those farmers had to put their backs into the job, provide proper dipping baths and dips and keep the sheep immersed long enough to kill the parasite. The lines they followed were very similar to those now being recommended here; if anything, ours will be improvements, since we have more knowledge to go upon. Their work was done mostly before the life cycle of the parasite was known, so it was all the more admirable. Anyhow, success, we now know, depends on one thing and one thing only, and that is proper dipping. In districts where the disease is known to exist, and where there is any chance of sheep having it even though it is unrecognised, the farmer should have the animals thoroughly double-dipped in an approved sheep dip. The

bath should be kept well up to strength, continually stirred, so that the sediment is not allowed to settle at the bottom, and all animals submitted to a sufficient and even strength of dip. The sheep should remain in long enough, and then a second dipping should be given not less than eight or more than fourteen days afterwards. This second dipping within the time is very important, as is also the exact following of the manufacturers' instructions for mixing the dip.

Much loss is occasioned both in meat and wool to farmers in out-of-the-way districts where little or no care is taken of the disease. Such lingering cases are, of course, punishable under the Diseases of Animals Acts for non-reporting, but local authorities are much more observant than they used to be. It was always difficult to supervise lonely tracks in the high mountains of Wales and in the North of Scotland, but these are being brought under review, and a great work has been done in recent years in Scotland and in central Wales by local authorities who have set their minds to diminishing this really serious disease. In Wales certain counties (Brecon, Cardigan, Radnor, Montgomery, Denbigh and Flint) have appointed patrol shepherds to examine the flocks and see that there are no hidden cases of scab. It is hoped that other counties will speedily follow suit. But where there is the readiness to conceal there you cannot hope to find the proper spirit for eradicating the disease. Eradication is really up to the farmers themselves; they alone can carry out the requirements in a firm and conscientious way, knowing that no less will rid them of this disease and its attendant losses.

One further point: there is a need all over the country for more and better dipping baths, and this fact is being brought forcibly to the notice of flock-masters by local authorities and by the Ministry, and they are as a rule readily responding to the request. The number of outbreaks of scab in Great Britain in 1929 was 666, as compared with 744 in 1928. The decrease occurred in Wales and Scotland. The figures for the three countries in 1929 were: England 318, Wales 308, and Scotland 40. The Ministry now renews its appeal to flock owners to maintain and increase their efforts to comply with the regulations, so that early reporting, thorough gathering of the sheep from the moors and mountains in the wilder districts and efficient dipping in clean and adequate baths may result in a more satisfactory position with regard to the disease.—*Ministry of Agriculture.*

The Use of Ratthanat.

The usual methods of rat destruction are not without disadvantages of one sort or another; drowning, ferretting, and shooting require elaborate preparation, and the use of poisons is attended with danger to domestic animals. The Bacteriological Institute of the Chamber of Agriculture of Berlin and Brandenburg has prepared a poison derived, it is stated, from "sea-onions," a popular name for *Scilla maritima* or squill. The poison is made up in cubes of bait attractive to rats, and has been given the proprietary name of Ratthanat. Even small quantities of the preparation when ingested by rats appear to cause death, with hæmorrhage into the intestines and enlargement of the spleen and kidneys. The dying rat seeks water and consequently often dies away from the premises on which the poison was taken. Domestic animals, it is claimed, are unaffected by the poison. Reports on the use of Ratthanat by the Institute for Hygiene, the Health Department of the City of Berlin, and the Prussian Institute of Hygiene are favourable; in each case test rats were used and received the preparation with other food; all the animals under experiment died in one, two, or three days, after a period of distress which usually terminated in coma and occasionally in convulsions. It is claimed that rats will attack the cubes even in the presence of other food and that one cube contains sufficient bait to kill six to eight rats. The poison usually has the effect of sterilising the intestine, thus helping to prevent offensive odours should the rat die in its hole. The bait can be obtained from Rat Exterminators, Ltd., Simpson House, Sheppy Place, Minories, London, E.C.3.—*The Lancet.*

From The Veterinarian,

May, 1830.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

On the 22nd ultimo, was held the Second Annual Meeting of Veterinary Practitioners. The weather on that and the preceding day was unpropitious, and prevented the presence of many from the suburbs and the country, who had expressed their intention to attend; but when we mention that we observed among those who surrounded the festive board, Messrs. Boutal, Buckland (Dartford), Burrel, J. (junr.) and W. Field, W. Goodwin, Green, Henderson, Jumpson, Killick, King (senr. and junr.), Langworthy, Mavor, Morgan, Moulden (Winchester), Palmer, J. and W. Percivall, Sewell (Brighton), Sewel (Water Lane), Slocombe, Smith, Stern, J. and T. Turner, and Youatt, it will be seen that the meeting was highly respectable, and that the apparently unanimous feeling of that meeting may be fairly considered to express the sentiments of the profession generally. Mr. W. Percivall occupied the chair.

The cloth being removed,

The Chairman gave "The King, the illustrious patron of the Veterinary College, and the warm and influential supporter of the turf. God send him a speedy return to health, and the long continuance and enjoyment of it!"

"The Duke of Clarence, and the Royal Family."

"The Duke of Wellington; our celebrated warrior and distinguished premier; a man equally distinguished in the field and in the State."

"The Veterinary Profession." The Chairman, on giving this toast, observed that he looked with heartfelt pleasure upon those assembled around him on such an occasion as the present; and that had more in number been present, that pleasure would have become increased. But he doubted not that those who were absent were prevented from attending from various causes—some by business, others by distance; and some there, perhaps, were, to whom a knowledge of what was passing had not arrived. He could not help, however, in particular, lamenting the non-presence of those gentlemen who were looked upon by the public as our leading men in the profession; he was sorry to find that they did not set that value upon our company which we set upon theirs; at the same time, he would venture to say, that, were they present, they would have, could have, no other feelings than those of gratification to witness, and partake in, what was here going on.

Some forty years ago, the profession was in a state of comparative barbarity; farriers were at that day the only practitioners, and but little knowledge, and less character, existed among them. Since then there had, most undoubtedly, been great improvement; and he trusted that we still were in a state of progressive amelioration. Great harm, however, had been done by the indiscriminate admission into the profession of persons who were little better than the old farriers; men void of education and respectability, and who could never reflect any credit upon the school of St. Pancras. The gates of that institution, through which candidates had to pass into the profession, had been thrown open so widely, that many had crowded through who ought to have been arrested at the portal. It is true that the pass had been, of late, contracted; that regulations had been framed to put some check to this; but all had not been done that ought to have been; and, in fact, much remained to be done.

At this advanced day of improvement the medical examiners still retained their places, little to their own credit, and less to our advantage; for they it is who are mainly in fault for the admission among us of so many men destitute of education and respectability.

So long as the profession is made up of such a heterogenous mass, so long is it impossible that its members can harmonise and amalgamate; it can only be when respectability and education shall be found to be universally diffused among us that anything like professional harmony can exist. I will conclude, Gentlemen, with giving you, "The Veterinary Profession, and Professional Unanimity."

Mr. Youatt, being called upon by the President for a toast, said that the Chairman had not given a flattering, but, he feared, a too accurate account of the present state of the veterinary profession; he would, however, beg leave to give the foster-mother of that profession—"The Veterinary College"—from which it had derived those supplies of mental food, which had not, indeed, nourished it to maturity, but which had, at least, enabled it to reach its present growth. This, he continued, is a toast which comes home to the business and bosom of every one present. Gratitude and interest identify us with the existence and prosperity of that institution. If it stands high in public estimation, our respectability is proportionately increased. If, from misapprehension on the part of the public, or its own misconduct, it is censured or almost despised, we, to a painful extent, necessarily sink with it. Its true interests, as a national institution, are inseparably connected with ours; and we cannot be otherwise than sincerely attached to it. There are, however, different ways of showing love. One person can see no fault in the object of his affection, and defends as excellencies its greatest inconsistencies. Another is fully alive to every excellence, but he is not insensible to those imperfections to which every individual and every institution is liable; and he has sufficient courage, or rather affection, to discharge the most painful, but paramount duty of love, namely, to endeavour to rectify those faults. The present company may be made up of both these descriptions of persons. The feeling in all is the same, but the manner of expressing it is different. Each party is equally sincere; the one must not be accused of servile and interested flattery, nor must the other be suspected of aversion or malignity. I confess that I belong to the latter class; for although I admire the excellence of the original design of the Veterinary College, and am sensible of, and grateful for the advantages which it is capable of bestowing, I see many faults which its infancy did not predict, and which its maturity ought not to possess. One thing, however, we must all rejoice in, that the improvement of this institution, although not satisisfactory, has of late been evident; and more has been affected, in the way of improvement, within the last three years than in the preceding twenty. Veterinary societies have arisen within that period, and in their discussions enlarged and correct views have been given of the nature and treatment of many diseases already recognised, and of others most important in their character, but previously unsuspected. Veterinary journals have also been established, and their columns have embodied, as it were, the experience and practice of the whole profession; and, differing, in a variety of respects, from the theory and practice of the St. Pancras school. The consequence of which has been, that this school is now compelled to keep some pace with the progress of science, or to appear to do so; more diseases have been recognised, the pharmacopeia has been increased, and theories of olden times have been modified, if not discarded. In the conducting of the school, the acquirement of anatomical knowledge, the only sure foundation of veterinary science, has been better secured by the appointment of an efficient demonstrator; the lectures have been more regular, more numerous, better studied, and more impressive; and the residence of the pupil, although not required to the extent which the difficulty and the respectability of the art demand, has been materially lengthened. All this has been done within the last three years. Are there contradictory symptoms? Indications of a retrograde course? It is in human nature that there should be, for although the understanding may be convinced, a long course of error is not abandoned without some indications of chagrin, and some vain and pardonable attempts to limit or retard the submission which circumstances compel. The little mounds which disappointment or anger may have raised will soon be broken down or overflowed, and the stream of improvement will pursue its course, until the English Veterinary College shall cease to be the only public school in which the instruction of the surgeon who is to practice on all domestic animals is confined to one alone—the only one in which the pupil is compelled to depend for a considerable portion of his education on eleemosynary, charity-school instruction, which, however honourable to him who gratuitously bestows it, must be degrading to the recipient—the only one in which the time allotted for education is shorter than that which is devoted to preparation for the lowest mechanical art—the only one in which the practice of operations and the manipulations of the forge are systematically neglected—the only one in which liberal education and scientific requirements are systematically discouraged—the only one in which the pupil and the practitioner are insultingly excluded from privileges granted to every one else—and the only one in which the important situation of examiner is occupied by those who are manifestly incompetent for it; whose absurd and obstinate detention of it (I speak with consideration) has exposed them to the laugh and censure of their brethren, and can only be excused on the principle that private friendship has rendered them insensible to public propriety. When this shall be effected, we shall drink wtih enthusiasm that which we do now with sincerity, "The Royal Veterinary College."

In Parliament.

In the House of Commons recently, the following questions and answers were recorded:—

Devonshire Ponies (Export).

Mr. Day asked the Minister of Agriculture the number of Devonshire ponies exported to the Continent for the 12 months ended to the last convenient date; if he can give particulars of where these ponies were landed; if he has any information that will show for what purpose these ponies were disposed of; and on how many occasions have the Inspectors of the Ministry of Agriculture travelled over to the Continent with consignments of ponies during the above period?

Mr. Noel Buxton: During the 12 months to April 30th, 1930, 54 Devonshire ponies were shipped in two consignments to the Continent. A further mixed lot of 19 Welsh and Devonshire ponies was also exported, but no information is available as to the number of Devonshire ponies in that consignment. These ponies were all landed at Ghent and were sold, according to the Ministry's information, for work. An Inspector of the Ministry travelled to the Continent with a consignment of these ponies on one occasion during the period.

Tuberculosis Order, 1925.

Dr. Hastings asked the Minister of Agriculture if he can say, having regard to the fact that of the 241,000 bovine animals examined during 1929 under the Tuberculosis Order, 1925, 2·8 per cent. only were condemned to be slaughtered, whether all the remaining 97·2 per cent. were entirely free from tuberculosis; and, if not, whether he can give any estimate of the probable number infected?

Mr. N. Buxton: The total number of animals on premises, on which cases of tuberculosis were reported, under the Tuberculosis Order, 1925, during 1929, was 621,396. Of this total, 241,252 animals were examined by veterinary inspectors. Of these, 15,732 animals were condemned and slaughtered, representing 2·8 per cent. of the total number of animals on the premises or 6·5 per cent. of the total number examined. The remainder were not necessarily entirely free from tuberculosis, but they presented no symptoms of a nature to bring them within the scope of the Tuberculosis Order as to compulsory slaughter. As regards the last part of the question, there is no information upon which an estimate could be based of the proportion which might be infected.

Dr. Hastings: Has the right hon. Gentleman reason to believe that all those that were not ordered to be slaughtered were free from tuberculosis?

Mr. Buxton: One can, in general, assume that cases of the nature that come under the Order are reported, and therefore examined.

Mr. Guinness: Can we take it that these animals which were examined, were examined as a result of suspicion, and that therefore it would not be fair to take even this low figure of 2 per cent. as applicable to animals in general throughout the country?

Mr. Buxton: That is correct; they were examined on suspicion.

Cow-Pox.

Mr. Groves asked the Minister of Agriculture whether any cases of natural cow-pox have been recently brought to the notice of his Department; and what steps are taken to prevent the spread of the disease?

Mr. N. Buxton: The only cases of cow-pox brought to the notice of the Ministry in recent years were reported in November, 1929, from the county of Dorset. Cow-pox is a disease which normally responds readily to treatment. It is usually confined to individual herds and does not become epidemic in character. It is not a source of serious loss to the owner, and a herd can be protected against infection by isolation of newly purchased cows or by the demand of a guarantee when cows are being bought. No administrative measures exist under the Diseases of Animals Acts, with regard to this disease. Having regard to its nature such measures would result in greater inconvience and loss than the circumstances warrant.

Slaughter of Animals.

Mr. Freeman asked the Minister of Agriculture the total number of cattle, sheep, and pigs killed in public, private, and registered slaughter-houses, separately, during 1929?

Mr. N. Buxton: I regret that this information is not in the possession either of my Department or of that of my right hon. Friend the Minister of Health, whom I have consulted.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

June 11th.—Meeting of the Southern Counties Division, N.V.M.A., at Tidworth.

June 12th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough.

June 12th.—Meeting of the North Midland Division, N.V.M.A., at Rotherham.

June 13th.—D.V.S.M. Written Examinations.

June 14th.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

June 16th.—D.V.S.M. Oral Examination commences.

July 2nd.—R.C.V.S. Quarterly Meetings.

July 3rd.—R.C.V.S. Quarterly Meetings.

July 4th.—R.C.V.S. Quarterly Meetings.

July 7th.—R.C.V.S. Membership Examination commences.

AUGUST 4th to 9th.—11th INTERNATIONAL VETERINARY CONGRESS, CENTRAL HALL, WESTMINSTER.

Personal.

Will.—Pallin, Lieutenant-Colonel Samuel Farrar Godfrey, D.S.O., late R.A.V.C. (51), of Southern Cross, Shaldon, Devon (net personalty, £2,616), £4,040.

The Ealing Sanatorium.

A claim against the Ealing Sanatorium for Cats and Dogs, Ltd., of 45 The Mall, Ealing, for negligent treatment of a dog entrusted to them for treatment was heard at Brentford County Court on Friday, May 23rd, 1930. Lt. Frederick Morley, of 20 Hamilton Road, Ealing, sued the Sanatorium for £11 18s. 6d.

Opening the case, Mr. Salter-Nicholls, for the plaintiff, explained that Mrs. Phyllis Hancock, whose professional name was Miss Phyllis Vernon, was the managing director of the company.

Lt. Morley said that after his pedigree wire-haired fox-terrier had been suffering from eczema for six months, during which time it was treated by a veterinary surgeon at Richmond, he got into touch with Mrs. Hancock when he went to the Sanatorium to buy some ointment. Mrs. Hancock suggested he should let her have the dog and on seeing it told him it was not suffering from eczema but from follicular mange.

He sent the dog to the Sanatorium so that Mrs. Hancock might give it a "special medicinal bath." Later he went to fetch it and found it in a state of collapse. It died shortly afterwards.

Not content with the explanation given by Mrs. Hancock that the dog had died from poisoning, he sent the body to the Royal Veterinary College for *post-mortem* examination.

It was reported to him that the dog had died from drowning. He estimated the dog's value at 10 guineas.

Professor John Wright, F.R.C.V.S., said he made a *post-mortem* on the dog and found a fluid in the stomach and lungs of an alkaline nature which might possibly have been bath water. The dog had been suffering from eczema. It had undoubtedly died as a result of inspiring the liquid.

In cross-examination the Professor said he did not agree that it was impossible for a dog to live for two hours after sufficient liquid to cause its death had entered the lungs. He knew by experience that dogs were very resistant to death.

Professor George Clough, professor of chemistry, said he tested the dog's organs for poison, with a negative result.

Mrs. Hancock said she treated the dog for follicular mange by standing it in a bath and dabbing its body with a preparation in a pint and a half of water, afterwards massaging and drying it. An assistant held the dog's head so that the liquid should not get into its nose or mouth.

Shortly after treatment the dog fainted and made an awful noise. It recovered consciousness but collapsed again. She had used the same treatment for 15 years without a casualty.

Her theory of the cause of death, she said, was that dressings previously used by Mrs. Morley had introduced poison into the dog's system.

It was not possible for any liquid to enter the animal's lungs or stomach while it was at the Sanatorium.

The judge said he was convinced that the dog died through drowning owing to liquid entering its lungs while it was at the Sanatorium.

He gave judgment against the Sanatorium Company for £8 and costs, and the qualifying fees for the two witnesses from the Royal Veterinary College.

H.M. Stationery Office Publications.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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Veterinary Corps, Royal Army. Regulations for Admission, 9130 (57-9999-00-00)	2 0	2 2
Health, Ministry of:—		
Model Byelaws:—		
VI. Slaughter Houses. Revised, 1930. (32-0016-06-30)	0 6	0 7

Erratum.—We regret that, in our report of the last meeting of the Mid-West and South Wales Division, N.V.M.A., held at Bath, the demonstration of passing the stomach tube by the nasal route in the horse was erroneously attributed to Mr. J. R. Barker, of Hereford. The demonstrator was Mr. J. R. Hewer, of Swindon, and we tender our apologies to both gentlemen.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Grass Sickness.

To the Editor of The Veterinary Record.

Sir,—In the Editorial on the subject of "Grass Sickness," appearing in the *Record* of May 24th, it is stated that the theory for which I am responsible, on the etiology of the disease, is that it is a simple dietetic trouble—excess of protein. It is also stated that that possibility has been discussed before but not published.

After a moment's consideration, one can quite well understand why such a theory was not published.

I am personally to blame for the misunderstanding, as in a short letter to the *Record* recently only the practical side of the matter was touched upon.

The following extracts from a paper read in Scotland recently (not yet published) will allay any misunderstanding:

"'Grass Disease' occurs chiefly in horses on a protein-rich pasture.

"'Grass Disease' is a new disease (in the sense that hysteria in dogs is a new disease). Animal husbandry has undergone a change during the last 40 years. The animal population has increased—more manuring of land (natural and artificial; phosphatic manures have greatly replaced lime, causing unbalanced manuring)—less lime used (probably causing deficiency). The climatic conditions in certain parts of the north (probably directly associated with the deficiency) are a casual factor."

In short, the causal factors according to the theory are: (1) Protein rich diet usually; (2) calcium deficiency; (3) climatic conditions of certain parts of the North of England and Scotland.

It is held in the paper that Grass Disease and Post-Parturient Dyspepsia are similar troubles under different conditions (habitation, feeding, etc.)—the three causal factors being the same.

The anal sphincter in Grass Sickness is contracted as is well known, and it is shown in the paper that the same is in the case in post-parturient dyspepsia—I have controlled statistics on the last point.

The causal factors, as stated in the paper, are summarised in their effects as an increased metabolism—the factors leading to stimulation of the adrenal-thyroid sympathetic system.

Yours faithfully,

Oscar Stinson.

"Charnwood,"
Garth Heads Road,
Appleby.
May 24th, 1930.

Professional Advertisements continued from page iii.

PRACTICES FOR SALE.

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FREEHOLD HOUSE.—Outbuildings, land, suitable for veterinary surgeon. Unique opportunity to establish a large, high-class Practice in a healthy and good social district; easy reach of London. Introductions given. No immediate opposition. Price, £2,750. Banker's references required.—Box 122.

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MISCELLANEOUS.

MALLEIN, Tuberculin, Vaccines for Black-quarter, Braxy and Interdigital cysts, also Autogenous Vaccines, may be obtained by members of the Veterinary Profession from the Department of Pathology, Royal Veterinary College, Camden Town, London, N.W.1.

WM. COLLINSON, M.R.C.V.S., South Anston, Sheffield, is prepared to operate on, or supply solution with full instructions to members of the profession for injection in, Bog Spavin, Thoropin, Capped Hock, or other Bursal enlargements. Also for stifle lameness and open and septic joints.

WANTED.—One each of the following numbers of THE VETERINARY RECORD: Vol. 32, 1920, 1666 and 1680; Vol. 1 (New Series), 1921, 1 and 37; Vol. 3, 1923, 17; Vol. 4, 1924, No. 10; also title-pages and indexes to Vol. 32, 1920, and Vols. 1 to 5, 1921-25. Clean condition essential. Write first to Box Copenhagen.

ADVERTISER, seeks post as Book-Keeper and Dispenser, part or whole-time work. Small salary. Home or Southern counties preferred.—X Y Z, 5 Broad Street, Brighton.

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